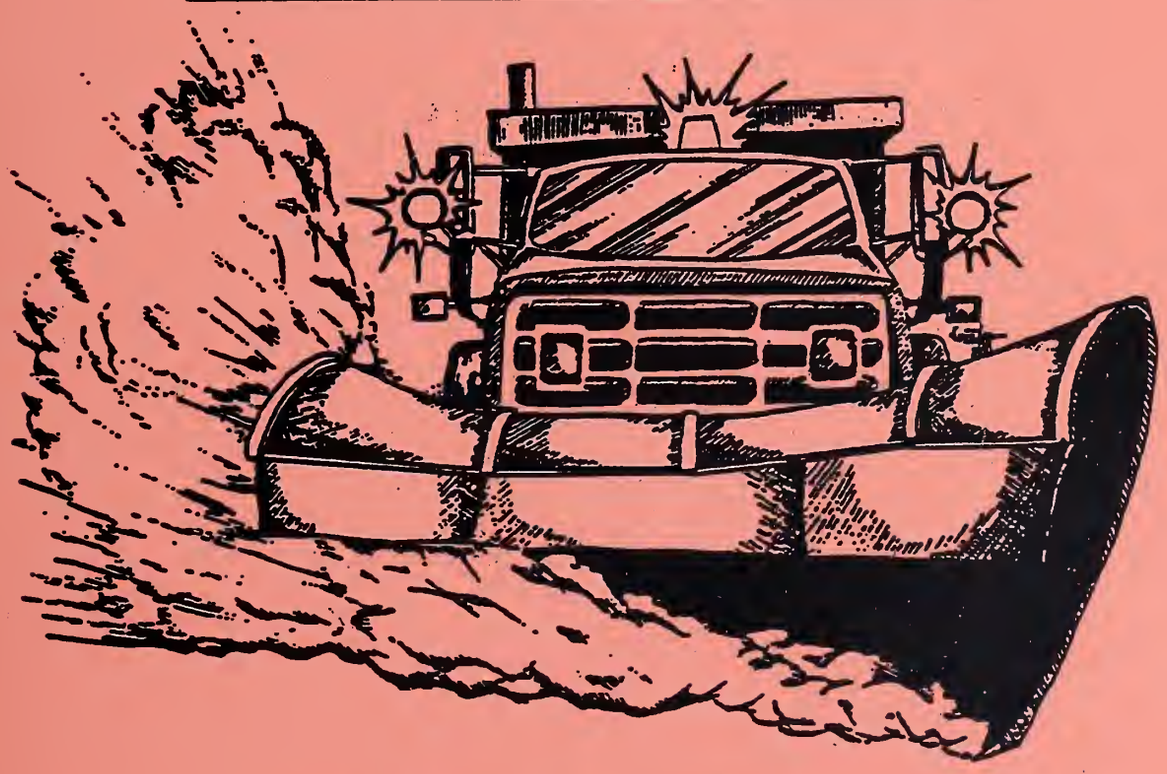
S
629.224092
T6TOC
2004
1

Montana Dept. of Transportation

TRUCK OPERATION COURSE FOR TEMPORARY AND BEGINNING DRIVERS

PARTICIPANT GUIDE



ORGANIZATIONAL DEVELOPMENT BUREAU
HELENA, MONTANA
September 2004

STATE PUBLICATIONS COLLECTION

DEC 1 0 2007

MONTANA S... ...RY
1515 E. 6... ...
HELENA, MONTANA 59620

Montana State Library
3 0864 1004 1869 1

"Serving You with Pride"

The Boys From Eight

By: Jim Allison (Ennis Section)

Winter's Here
Let Her Come,
The Boys From Eight
Will Get It Done.

No Drift Too Big
No Road Too Slick,
No Wind Too Strong
No Fog Too Thick.

Drop The Plow
And Shift Her Down,
Spread Some Sand
Around The Town.

Up On The Mountain
In Blizzard Conditions,
Whipping The Road
Into Submission.

Way Up South
The Snow Is Deep,
Wing Her Back
And Earn Your Keep,

Sleep Is Short
For The Boys From Eight,
Until It Quits
Safe Roads We'll Make.

Jammin' Gears
And Throwin' Snow,
Around The Section
We Do Go.

Punch It Through
Hit It Again,
This Ain't Work
For Lesser Men.

Eyes Of An Eagle
Nerves Of Steel,
We're Plowin' Now
Mostly By Feel.

The Silver Stack
Is Blowin' Smoke,
We're Kicking Rear
And That's No Joke.

One Things For Sure
In What We Do,
We Get The Traffic
Right On Through.

TABLE OF CONTENTS

COURSE OUTLINE 4

MODULE 1: INTRODUCTION TO MAINTENANCE 7

DISTRICT AND AREA DIRECTORY 9
PURPOSE OF MAINTENANCE 32
TRAINEES POP QUIZ 33
CHARACTERISTICS OF A COMPETENT WORKER 38
PUBLIC RELATIONS 39
POLICY AND PROCEDURE 40

MODULE 2: MDT POLICY & PROCEDURE / SAFETY 41

IN CASE OF ACCIDENT 42
POST ACCIDENT TESTING REQUIREMENTS DIAGRAM FOR TESTING 43
SAFETY PROCEDURES FOR TRUCK OPERATION 44
SAFETY AND ACCIDENT REPORT (REPORT OF INCIDENT FORM) 45
REPORT OF INCIDENT COMPLETION INSTRUCTIONS 47
WHAT TO DO IF 50

MODULE 3: DOCUMENTATION FORMS 53

MANITENANCE AND EQUIPMENT TIME SHEET 54
OPERATOR USEAGE REPORT 56
MINI 70S 57
EQUIPMENT CLASS CODES 58

MODULE 4: PRE-OPERATIONAL CHECKS, START-UP & SHUT DOWN 59

PRE-OPERATION, START-UP, SHUT -DOWN, AND WALK AROUND INSPECTION 60
LUBRICATION 62

MODULE 5: TRUCK OPERATION 63

TRUCK DRIVING OPERATION CHECKLIST 64
PREVENTATIVE MAINTENANCE CHECKLIST 66
UNIT SERVICE REQUEST FORM 67
SHIFTING
- Double Clutching Procedures 68
- Consequences of Poor Shifting Habits 69
- Shift Lever Patterns and Shifting Controls 70

BRAKING SYSTEMS
- Stopping Distance: Wet vs. Dry Pavement 74
- Stopping Distance: Snow and Ice 75
- Response Time and Distance Traveled 76

GRADES
- Handling Upgrades & Downgrades 77

COMMUNICATION
- MDT two-way radio system 78
- Dispatch Information 83
- Condition Numbers and Descriptions 84

MODULE 6: SNOW PLOW OPERATION **85**

TEN COMMANDMENTS FOR SNOW PLOW OPERATORS 86
SNOW PLOW OPERATION CHECKLIST 87
LEVELS OF SERVICE 88
KNOW YOUR SNOW PLOW ROUTE 94
CUTTING EDGES 95
GROUP ACTIVITY: EMERGENCY SCENARIO SITUATIONS 96

MODULE 7: TRUCK AND TRAILER USAGE **97**

TRUCK AND TRAILER OPERATION CHECKLIST 98

MODULE 8: LOADER USAGE **99**

MODULE 9: TRAFFIC CONTROL **99**

MODULE 10: REVIEW **100**

GROUP ACTIVITY MANUAL SEARCH 101

MODULE 11: SECTION LOCATION **103**

Course Outline

Truck Operation Training for Temporary and Beginning Drivers

This course is designed to correspond to the training needs for temporary and new truck drivers. Course content is the combined efforts of current MDT truck driver trainers, personnel specialists, and appropriate maintenance officials.

Special thanks to Monty Rickett, Mike Dyrdahl, Bonnie Sedita, Nancy Ostle, and Dan Williams for their many years of experience and their dedication to excellence that helped make this course possible.

This manual is broken into modules. The MDT trainer(s) will guide participants through the appropriate modules. The type of work that the new employee can expect on the job determines modules chosen

Module 1 Introduction to Maintenance

Classroom Setting:

Provides basic information on the purpose of maintenance, characteristics of a competent worker, public relations, policy and procedures, and a trainee pop quiz.

Module 2 Safety Procedures

Classroom Setting:

Provides basic information on what to do in an accident situation, post accident testing, safety procedures for truck operation, safety and accident report, and what to do if.... hints.

Module 3 Documentation Forms

Classroom Setting:

Provides basic documentation information for maintenance and equipment time sheets, operator usage forms, and mini 70's.

Module 4 Pre-operational Checks, Start-Up, & Shut-Down

Classroom Setting:

Provides basic information for pre-operation procedure, pre-trip inspection, and lubrication of systems.

Hands On Setting:

Trainers will demonstrate proper pre-trip inspection, lubrication, and start-up and shut-down procedures. Individual trainees will perform inspections with guidance from trainers.

Module 5 Truck Operation

Classroom Setting:

Provides a truck driving operation check list as well as basic information on preventative maintenance, unit service, key elements of shifting, stopping, grades, and communication. This information provides an awareness of the steps necessary to maintain a positive working relationship between maintenance and equipment.

Module 6 Snow Plow Operation

Classroom Setting:

Provides a snow plow operation checklist as well as basic information on levels of service, snow plow routes, and cutting edges. It also contains a group activity designed to build the driver's confidence while developing a plan of action to handle an emergency situation.

Hands On Training:

Trainer demonstrates proper cutting edge replacement technique, and plow mounting and dismounting.

Module 7 Truck and Trailer Useage

Classroom Setting:

General knowledge and awareness of the role maintenance plays in transporting equipment. General information on safety hazards, correct loading techniques, securing techniques, transporting techniques, and unloading techniques on a tilt bed trailer. Module includes a truck and trailer operation checklist.

Hands on Training:

Trainers will demonstrate loading, securing, transporting and unloading equipment using a tilt bed trailer. Individual trainees will assist in this activity under the guidance of the trainer.

Module 8 Loader Useage

Classroom Setting:

Provides overview of proper loader use, including walk-around, start-up, and shut down procedures. Provides understanding of loading cycles, stockpile maintenance, and truck loading.

Hands On Training:

Trainers will demonstrate walk-around, start-up, and shut down procedures. Trainers will demonstrate loading cycles, stockpile maintenance, and truck loading. Individual trainees will participate in listed activities under the guidance of the trainer.

Module 9 Traffic Control

Classroom Setting:

Provides overview of proper use of signs, cones, and flaggers within a properly designed work zone. Provides working skills in setting up a short-term work zone and skills necessary to safely function as a flagger.

Module 10 Review

Classroom Setting:

Provides opportunity to review the various manuals and handouts received during training. (Group Activity)

Module 11 Section Location

On Site Training:

Orientation given by section supervisor or designated section employee.

Section Setting:

Provides new employees an overview of job functions at the specific work site. Specific items will include building maintenance, yard maintenance, material location, small equipment and tool use, and general work procedures.

Hands on Setting:

Section supervisor or designated section employee will inform new employee of proper equipment operation procedures. Opportunity for hands on operation of front end loaders and snow plows will be provided.

Digitized by the Internet Archive
in 2016

https://archive.org/details/truckoperationco2004mont

Module 1: Introduction to Maintenance

District and Area Directory
Purpose of Maintenance
Trainee's Pop Quiz
Characteristics of a Competent Worker
Public Relations
Policy and Procedure

Purpose:

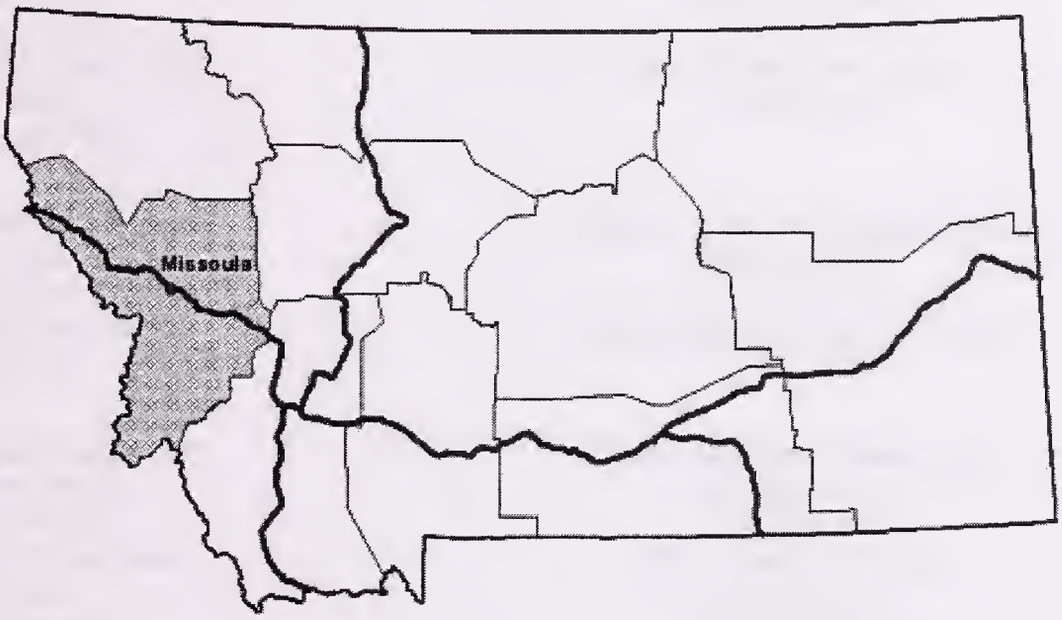
Provide basic information about the purpose of maintenance. Provide basic guidance in MDT policies, procedures and paperwork that relates directly to maintenance activities. Provide an awareness of public relations. Provide awareness of employee relations.

Objectives:

- ✓ **Understand purpose of maintenance.**
- ✓ **Know MDT safety policy and procedures.**
- ✓ **Understand specific MDT maintenance policies and procedures.**
- ✓ **Locate information in operations and procedure manuals.**
- ✓ **Learn ways to relate to the public.**
- ✓ **Have awareness of Equal Employment Opportunity regulations.**

MDT Maintenance Division

Missoula Maintenance Area
2100 W. Broadway
PO Box 7039
Missoula, MT 59807-7039
(406) 523-5800 - office
(406) 523-5801 - fax
Division 11



Doug Moeller, Maintenance Chief

523-5803 (office)
544-5803 (cell)
dmoeller@mt.gov

Maintenance Superintendents

Steve Miller
523-5816
544-3344 (cell)
stemiller@mt.gov

Gary Hornseth
523-5815
544-3355 (cell)
ghornseth@mt.gov

Kevin Gower
649-2768
544-6216 (cell)
kgower@mt.gov

Equipment Shop Superintendent

Jack May

523-5835
jamay@mt.gov

Maintenance Sections

Missoula Section - 1101
Larry Connell
PO Box 7039
Missoula, MT 59807-7039
523-5845
544-5468 (cell)

Seeley Lake Section - 1102
Bruce Friede
PO Box 897
Seeley Lake, MT 59868-0897
677-2599
544-6807 (cell)

Clinton Section - 1104
Montie Lavoie
PO Box 56
Clinton, MT 59825-0056
825-4970

Drummond Section - 1105
Chuck Reynolds
PO Box 426
Drummond, MT 59832-0289
288-3200
544-6806 (cell)

Philipsburg Section - 1106
Monte Makin
PO Box 934
Philipsburg, MT 59858-0953
859-3932

Lolo Pass Section - 1107
Justun Juelfs
37048 Highway 12 West
Lolo, MT 59847-9412
273-0252

Lolo South Section - 1108
Jason Shorten
PO Box 791
Lolo, MT 59847-0791
273-3079
544-2361 (cell)

Hamilton Section - 1109
Scott Reeseman
909 Hub Lane
Hamilton, MT 59840-8931
363-4477
544-6805 (cell)

Lost Trail Section - 1110
Ken Hamblen
8216 Highway 93 South
Sula, MT 59871-9609
821-3736

Evaro Section - 1111
Randy Tiensvold
17185 Highway 93 North
Missoula, MT 59808-9267
726-3760

Alberton Section - 1112
Dale Andrews
PO Box 334
Alberton, MT 59820-0334
722-4507

Superior Section - 1113
Larry Bullock
PO Box 943
Superior, MT 59872-0943
822-3386
544-6812 (cell)

Lookout Pass Section - 1114
Bill Sansom
PO Box 30026
DeBorgia, MT 59830
678-4281

Ravalli Section - 1115
Tim Callahan
PO Box 107
Ravalli, MT 59863-0107
745-4373 (cell)

Ronan Section - 1116
John Delaurenti
615 Franklin Street SW
Ronan, MT 59864
644-2220

Plains Section - 1117
Leonard Larson
PO Box 26
Plains, MT 59859-0026
826-4457

Thompson Falls - 1118
Larry Mickelson
PO Box 128
Thompson Falls, MT 59873-0128
827-0088

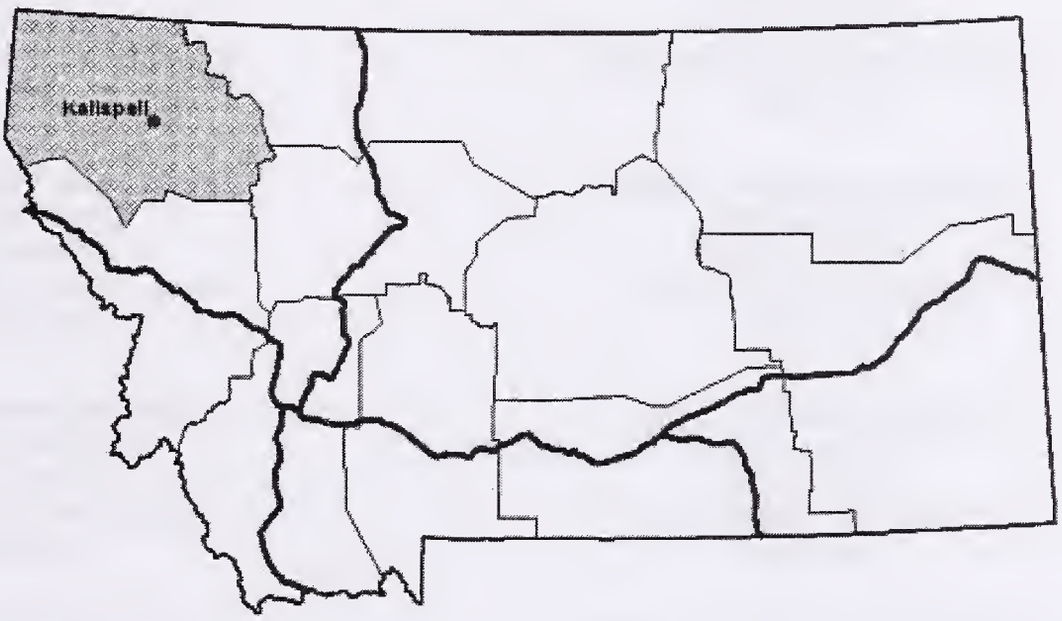
Back to Top

MDT Maintenance Division

Home
Search
Departme
MDT Inte

News | About Us | Programs | Area Offices | Info | FAQs

Kalispell Maintenance Area
85 Fifth Avenue EN
PO Box 7308
Kalispell, MT 59904-0308
(406) 751-2000 - office
(406) 752-5767 - fax
Division 12



Stephen Herzog, Area Maintenance Engineer

751-2000 (office)
250-0601 (cell)
sherzog@mt.gov

Maintenance Superintendents

Clay Colby
751-2014
250-0605 (cell)
ccolby@mt.gov

Ken Lambeth
751-2011
250-0603 (cell)
klambeth@mt.gov

Rich Sipe
751-2012
250-0602 (cell)
rsipe@mt.gov

Equipment Shop Superintendent

Paul Eggum

751-2032
peggum@mt.gov

Maintenance Sections

Kalispell Section - 1201
Cliff Steinmetz
PO Box 7308
Kalispell, MT 59904-0308
751-2023
250-0604 (cell)

Columbia Falls Section - 1202
Dennis Oliver
490 Rogers Road
Columbia Falls, MT 59912
892-2073

West Glacier Section - 1203
Tom Bengtson
PO Box 355
West Glacier, MT 59936-0355
888-5666

East Glacier Section - 1204
Brian Gallup
PO Box 226
East Glacier, MT 59434-0226
226-5565

Bigfork Section - 1205
Bert Johnson
PO Box 1776
Bigfork, MT 59911-1776
755-2007

Swan Lake Section - 1206
Chuck McLeod
PO Box 5144
Swan Lake, MT 59911-5144
886-2282

Polson Section - 1207
William Schultz
PO Box 175
Polson, MT 59860-0175
883-4240

Rollins Section - 1209
Doug Tassemeyer
PO Box 231
Rollins, MT 59931-0231
844-2049

Hot Springs Section - 1210
Jim Lawson
PO Box 271
Hot Springs, MT 59845-0271
741-3795

Marion Section - 1212
Dwyght Lindberg
8005 Hwy. 2 West
Kila, MT 59920
854-2626

Crystal Creek Section - 1213
Mabel Beito
33748 Hwy. 2 South
Libby, MT 59923
293-4200

Noxon Section - 1214
Bill Nelson
PO Box 1462
Noxon, MT 59853-1462
847-2650

Whitefish Section - 1215
Wade Toren
PO Box 1256
Whitefish, MT 59937-1256
862-3068

Eureka Section - 1216
Dave Rauser
210 MT Hwy. 37
Eureka, MT 59917
297-2980

Libby Section - 1219
Van Swearingen

Troy Section - 1220
Gaylen Boelke

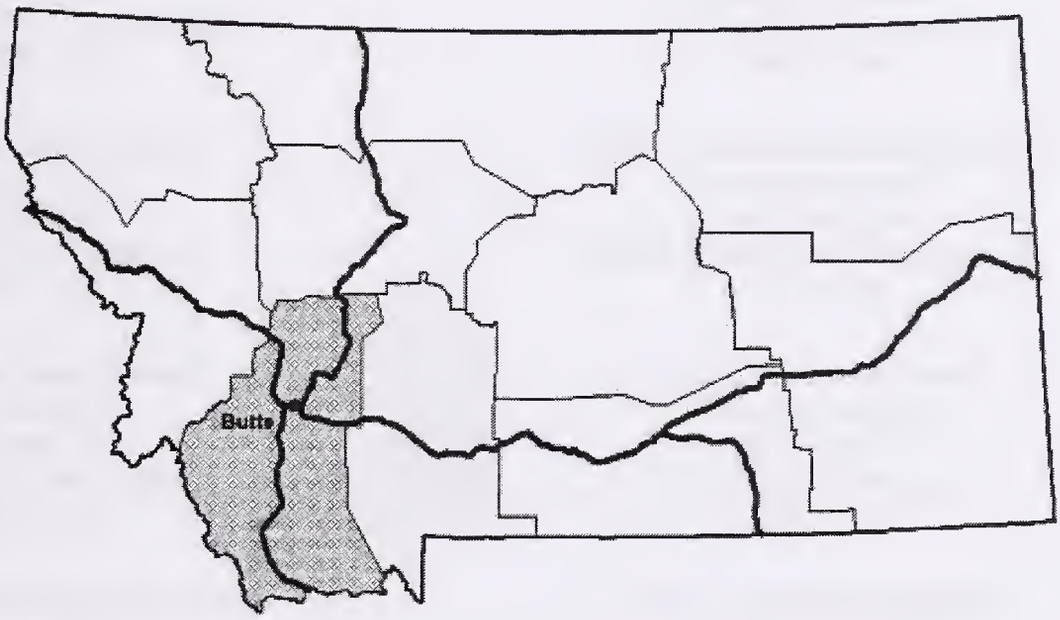
3098 Hwy. 2 South
Libby, MT 59923
293-7921

PO Box 186
Troy, MT 59935-0186
295-5753

Back to Top

MDT Maintenance Division

Butte Maintenance Area
3751 Wynne Avenue
PO Box 3068
Butte, MT 59702-3068
(406) 494-9600 - office
(406) 494-4396 - fax
Division 21



Kevin Brewer, Maintenance Chief

494-9627 (ofice)
490-3888 (cell)
kbrewer@mt.gov

Maintenance Superintendents

Quentin Miller
444-6399
431-1828 (cell)
qmiller@mt.gov

Martin Martin
494-9628
490-0426 (cell)
mamartin@mt.gov

Equipment Shop Superintendent

Lorrin Wallace

494-9639
lwallace@mt.gov

Maintenance Sections

Butte Section - 2101
Wayne O'Connell
PO Box 3068
Butte, MT 59702-3068
494-9632

Boulder Section - 2103
Mike Miller
Drawer 9
Boulder, MT 59632
225-3919

Helena Section - 2104
Kevin Millhouse
PO Box 201001
Helena, MT 59620-1001
444-6388

Whitehall Section - 2106
Richard Capp
PO Box 471
Whitehall, MT 59759-0471
287-5503

Twin Bridges Section - 2109
Richard Dulaney
PO Box 294
Twin Bridges, MT 59754-0294
684-5714

Dillon Section - 2110
John Schuler
PO Box 1191
Dillon, MT 59725-1191
683-2268

Lima Section - 2111
Roger Cochran
PO Box 128
Lima, MT 59739-0128
276-3485

Divide Section - 2112
Russell Duipis
PO Box 99
Divide, MT 59727-0099
267-3324

Wisdom Section - 2113
Richard Lawson
PO Box 46
Wisdom, MT 59761-0046
689-3115

Anaconda Section - 2114
Ron Verlanic
PO Box 587
Anaconda, MT 59711-0587
563-7307

Deer Lodge Section - 2115
Jim Archer
67 Valley View
Deer Lodge, MT 59722
846-1204

MacDonald Pass Section - 2116
Kam Wrigg
6980 Hwy. 12 West
Helena, MT 59601
443-0645

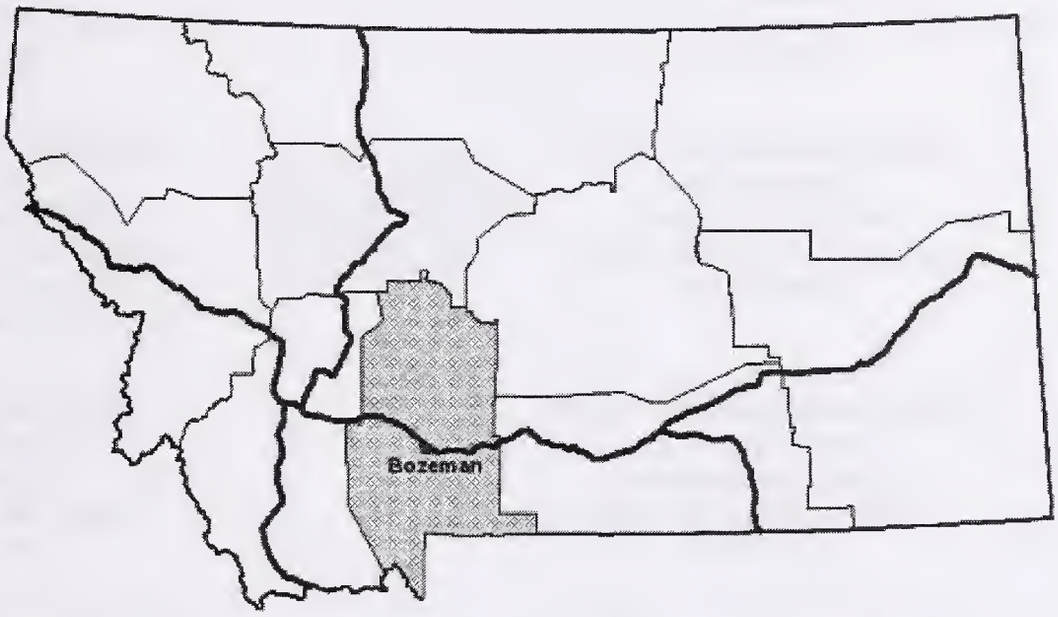
Back to Top

MDT Maintenance Division

Home
Search
Departme
MDT Inte

News | About Us | Programs | Area Offices | Info | FAQs

Bozeman Maintenance Area
907 N. Rouse Avenue
PO Box 1110
Bozeman, MT 59771-1110
(406) 556-4700 - office
(406) 586-5202 - fax
Division 22



Ross Gammon, Maintenance Chief

556-4704 (office)
581-0732 (cell)
rgammon@mt.gov

Maintenance Superintendents

Maurice Dedycker
556-4705
581-2718 (cell)
mdedycker@mt.gov

Mark Petersen
556-4706
581-0731 (cell)
mapetersen@mt.gov

Equipment Shop Superintendent

C. Ray Stocks

556-4716
cstocks@mt.gov

Maintenance Sections

Bozeman Section - 2201
Don Woodland
PO Box 1110
Bozeman, MT 59771-1110
556-4719

Livingston Section - 2202
Gerald Martello
PO Box 133
Livingston, MT 59047-0133
222-2611

White Sulphur Springs Section - 2203
Dick Toavs
PO Box 492
White Sulphur Springs, MT 59645-0492
547-3531

Wilsall Section - 2204
Mike Wilkins
PO Box 108
Wilsall, MT 59086-0108
578-2554

Carbella Section - 2205
Stephan Felix
HCR 38, Box 646
Emigrant, MT 59027-0646
848-7216

Big Sky Section - 2206
Dan Noyes
43870 Gallatin Road
Gallatin Gateway, MT 59730
995-4264 (Big Sky)
763-4029 (Gallatin Gateway)

Duck Creek Section - 2207
Butch Parmly
8060 Gallatin Road
W. Yellowstone, MT 59758
646-7268

Ennis Section - 2208
Bill Stecker
PO Box 782
Ennis, MT 59729-0782
682-4971

Harrison Section - 2209
Larry Brooke
PO Box 252
Harrison, MT 59732-0252
685-3480

Three Forks Section - 2211
Robert Miotke
PO Box 451
Three Forks, MT 59752-0451
285-3624

Townsend Section - 2212
Jeff DeMars
7827 Hwy. 287
Townsend, MT 59644
266-5571

Deep Creek Section - 2213
Donald Kellar
2655 Hwy. 12 W.
White Sulphur Springs, MT 59645
547-2151

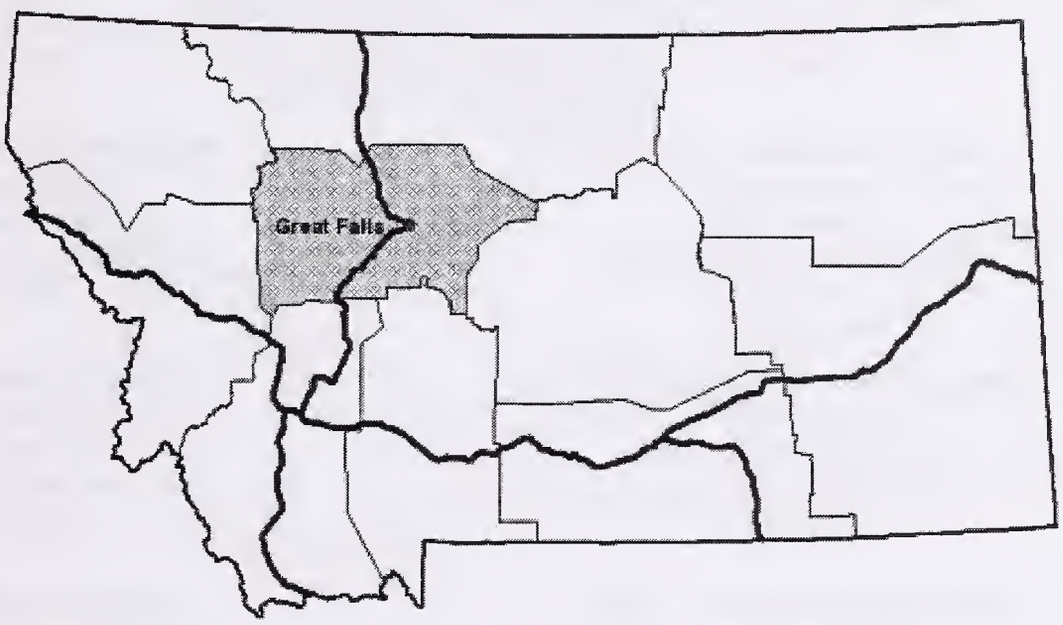
Administrative Section - 2290
Kim Janzen (Division Carpenter)
PO Box 1110
Bozeman, MT 59771-1110
586-9562

Back to Top

MDT Maintenance Division

Great Falls Maintenance Area
200 Smelter Avenue NE
PO Box 1359
Great Falls, MT 59403-1359

(406) 454-5880 - office
(406) 453-8737 - fax
Division 31



Dave Kelly, Maintenance Chief

454-5889 (office)
788-1079 (cell)
dakelly@mt.gov

Maintenance Superintendents

Mike MacDonald
454-5891
788-1081 (cell)
mmacdonald@mt.gov

Gary Engman
454-5903
788-1080 (cell)
gengman@mt.gov

Equipment Shop Superintendent

Lucas Cowan

454-5905
lcowan@mt.gov

Maintenance Sections

Great Falls Section - 3101
Claire Gleason
PO Box 1359
Great Falls, MT 59403-1359
454-5919

Fort Benton Section - 3102
Kendall Squires
PO Box 1026
Fort Benton, MT 59442-1026
622-3329

Belt Section - 3103
Randy Simonich
2 Montana Highway 200
Belt, MT 59412-8324
738-4319

Neihart Section - 3104
Bill Burton
PO Box 185
Monarch, MT 59463-0185
236-5571

Cascade Section - 3105
Ray Posel
PO Box 289
Cascade, MT 59421-0289
468-9211

Wolf Creek Section - 3106
Bob Cloninger
PO Box 357
Wolf Creek, MT 59648-0357
235-4213

Rogers Pass Section - 3107
Johnny Wilson
5380 MT Highway 200
Wolf Creek, MT 59648
235-4402

Lincoln Section - 3108
Ted Winderl
PO Box 1176
Lincoln, MT 59639-1176
362-4607

Sun River Section - 3109
Bob Morgan
PO Box 21
Sun River, MT 59483-0021
264-5384

Augusta Section - 3110
Dave Lindseth
PO Box 144
Augusta, MT 59410-0144
562-3200

Choteau Section - 3112
Doug Nowlin
PO Box 27
Choteau, MT 59422-0027
466-5385

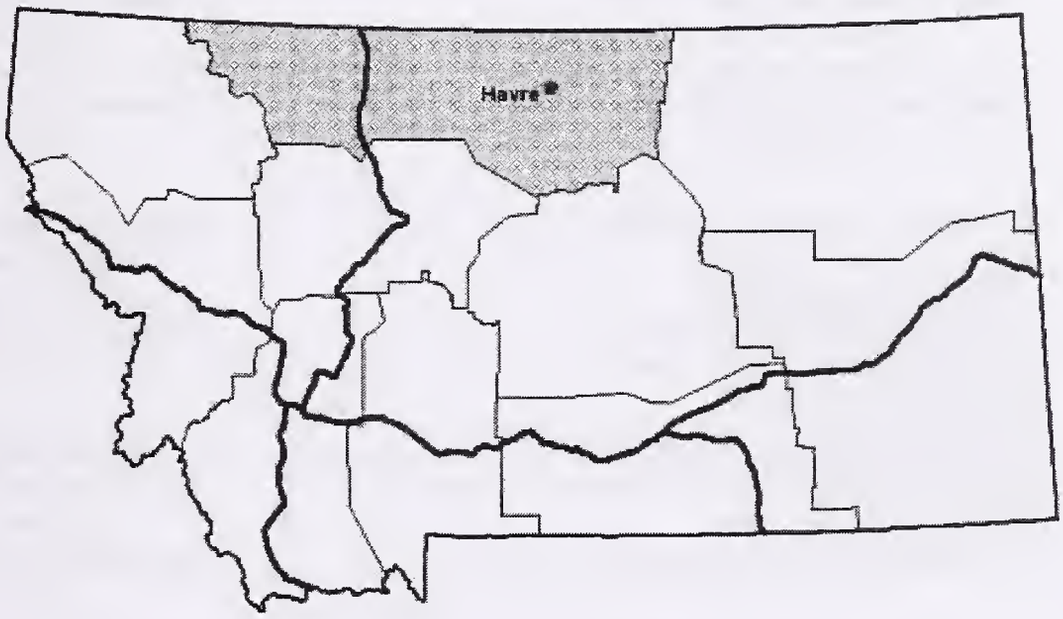
Dutton Section - 3113
Rick Johnson
1326 16 Road NE
Dutton, MT 59433
476-3251

Back to Top

MDT Maintenance Division

Havre Maintenance Area
1649 US Highway 2 NW
Havre, MT 59501-3455

(406) 262-5500 - office
(406) 265-9707 - fax
Division 32



Dave Hand, Maintenance Chief

262-5504 (office)
390-2471 (cell)
265-9707 (fax)
dhand@mt.gov

Maintenance Superintendents

Dave Wollan
434-2491
390-2501 (cell)
434-7130 (fax)
dwollan@mt.gov

Dennis Cline
262-5505
390-2503 (cell)
265-9707 (fax)
dcline@mt.gov

Equipment Shop Superintendent

Matt Ladenburg

262-5508
265-9707 (fax)
mladenburg@mt.gov

Maintenance Sections

Havre Section - 3201
Les Bender
1649 US Highway 2 NW
Havre, MT 59501-3455
262-5509

Harlem Section - 3202
Tom Nicholson
PO Box 416
Harlem, MT 59526-0416
353-2282

Big Sandy Section - 3203
Robert Gregory
PO Box 562
Big Sandy, MT 59520-0562
378-2229

Chester Section - 3204
Floyd Webb
PO Box 663
Chester, MT 59522-0633
759-5616

Shelby Section - 3205
Don McNett
PO Box 415
Shelby, MT 59474-0415
434-2491 or 434-5789

Dupuyer Section - 3206
James Fitzpatrick
PO Box 224
Dupuyer, MT 59432-0224
472-3270

Conrad Section - 3207
Jim Aakre
PO Box 1301
Conrad, MT 59425-1301

Cut Bank Section - 3208
Don Weaver
PO Box 1403
Cut Bank, MT 59427-1403
873-2112

Browning Section - 3209
Jerry Boggs
PO Box 1109
Browning, MT 59417-1109
338-2610

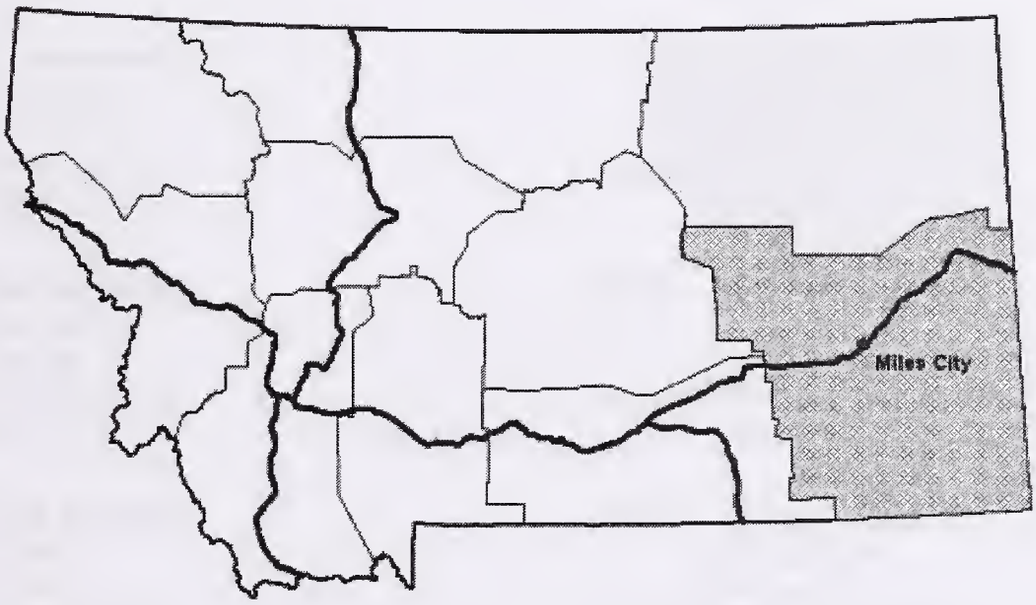
St. Mary Section - 3210
Lester Gray
PO Box 110
Babb, MT 59411-0110
732-5552

Sunburst Section - 3211
John Nicholson
PO Box 646
Sunburst, MT 59482-0646
937-7111

Back to Top

MDT Maintenance Division

Miles City Maintenance Area
217 N. Fourth Street
PO Box 460
Miles City, MT 59301-0460
(406) 233-3600 - office
(406) 232-4273 - fax
Division 43



Jack Peaslee, Maintenance Chief

233-3622 (office)
853-1391 (cell)
jpeaslee@mt.gov

Maintenance Superintendents

Clyde Mitchell
345-8249
939-0291 (cell)
clmitchell@mt.gov

Mike Patch
233-3623
853-3623 (cell)
mpatch@mt.gov

Equipment Shop Superintendent

Ralph Howard - Miles City
233-3605
rhoward@mt.gov

Russ Carman - Glendive
345-8245
rcarman@mt.gov

Maintenance Sections

Miles City HQ - 4301
Jay C. Harvey
PO Box 460
Miles City, MT 59301-0460
233-3618 (HQ)
421-5573 (Beaverslide)

Fiddleback Section - 4302
John Medearis
HC 84, Box 40
Ismay, MT 59336-0040
772-5523

Wibaux Section - 4303
Ed Bach (Crew Leader)
RR 1, Box 2209
Wibaux, MT 59353-9710
796-2542

Broadus Section - 4304
Robert A. Morgan
PO Box 712
Broadus, MT 59317-0712
436-2376

Terry Section - 4305
Randy Robertson
PO Box 656
Terry, MT 59349-0656
635-5486

Forsyth Section - 4306
Roger McCaffree
HC 84, Box 2001
Forsyth, MT 59327-9701
356-7108

Ashland Section - 4307
Ed Morgan
PO Box 338
Ashland, MT 59003-0338
784-2224

Glendive Section - 4308
Mike Skillestad
PO Box 890
Glendive, MT 59330-0890
377-9910

Jordan Section - 4309
Norman Kerr
PO Box 492
Jordan, MT 59337-0492
557-2338

Colstrip Section - 4310
Gary Baker
PO Box 1922
Colstrip, MT 59323-1922
748-2448

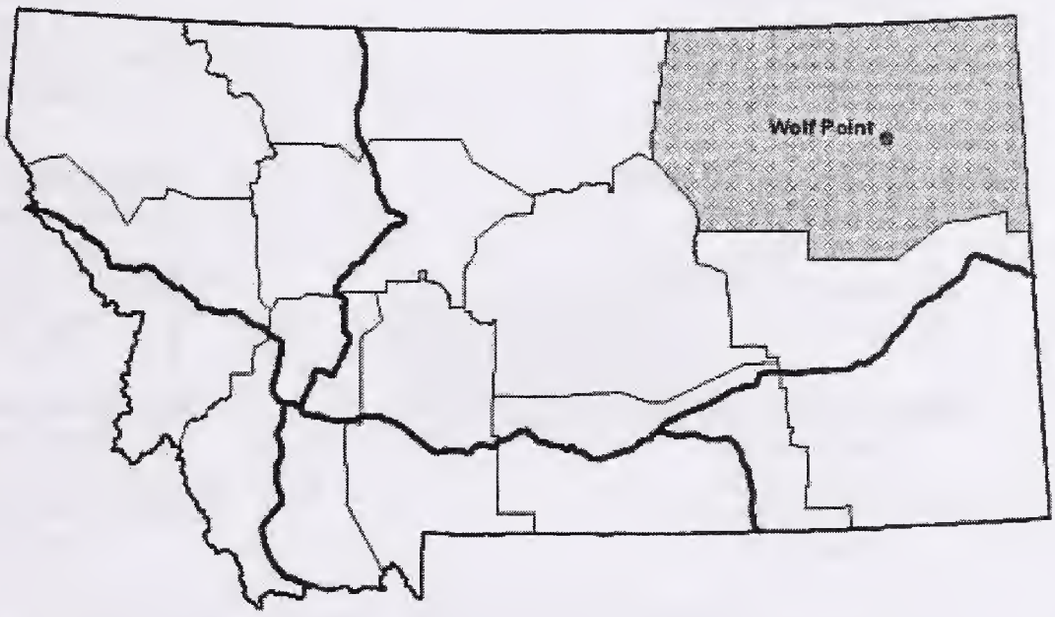
Baker Section - 4314
Dale Newell
PO Box 974
Baker, MT 59313-0974
778-3587

Back to Top

MDT Maintenance Division

Wolf Point Maintenance Area
Highway 25
HC 31, Box 3000
Wolf Point, MT 59201-9802

(406) 653-6700 - office
(406) 653-6739 - fax
Division 42



Bill Juve, Maintenance Chief

653-6709 (office)
650-7084 (cell)
bjuve@mt.gov

Maintenance Superintendents

Karl Pula
653-6712
650-7184 (cell)
kpula@mt.gov

Kent Shepherd
Glendive office: 345-8253
Wolf Point office: 653-6713
650-8077 (cell)
kshepherd@mt.gov

Equipment Shop Superintendent

Doug Sonsteng
653-6715
dsonsteng@mt.gov

Maintenance Sections

Wolf Point Section - 4201
Donald (Butch) Sansaver
HC 31, Box 3000
Wolf Point, MT 59201-9802
653-6705

Culbertson Section - 4202
Leland J. Vannatta
PO Box 132
Culbertson, MT 59218-0132
787-5773

Plentywood Section - 4203
Lanny Nordhagen
621 West First Avenue
Plentywood, MT 59254
765-2054

Sidney Section - 4204
Allen Baier
HC 89, Box 5165
Sidney, MT 59270-5165
488-1919

Glasgow Section - 4205
Dennis F. Shanks
RR 1-4778
Glasgow, MT 59230
228-8011

Circle Section - 4206
Ned Sikveland
PO Box 76
Circle, MT 59215-0076
485-2056

Malta Section - 4207
James Heikens
PO Box 713
Malta, MT 59538-0713
654-2579

Opheim Section - 4208
Lowell Hallock
PO Box 313
Opheim, MT 59250-0313
762-3267

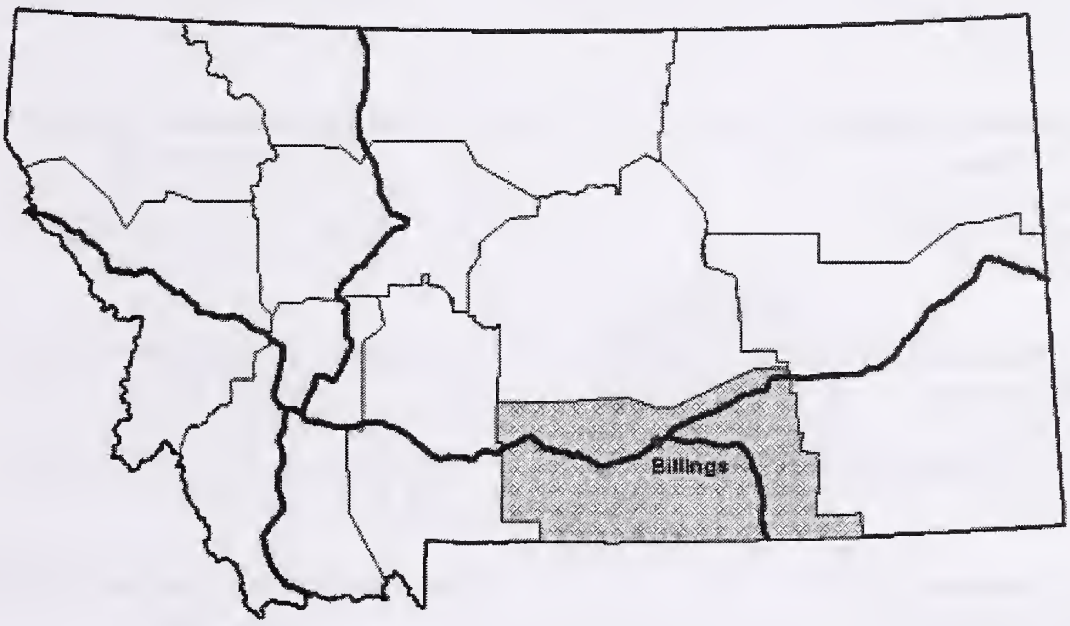
Scobey Section - 4209
Ralend Holum
PO Box 971
Scobey, MT 59263
487-5472

Flowing Wells Section - 4210
Tracy Milroy
HC 77, A53
Brockway, MT 59214-9704
557-2358

Circle Section - Richey Satellite - 4211
Ned Sikveland
PO Box 167
Richey, MT 59259-0167
773-5235

Back to Top

Billings Maintenance Area
424 Morey Street
PO Box 20427
Billings, MT 59104-0437
(406) 252-4138 - office
(406) 256-6487 - fax
Division 51



Jim Stevenson, Maintenance Chief

657-0217 (office)
855-7831 (cell)
jstevenson@mt.gov

Maintenance Superintendents

Ken Hembree
657-0223
khembree@mt.gov

Tom Kane
657-0225
tkane@mt.gov

Equipment Shop Superintendent

Mike Teter
657-0251
mteter@mt.gov

Maintenance Sections

Lodge Grass Section - 5101

Billings Section - 5102

Mark Chandler
PO Box 545
Lodge Grass, MT 59050-0545
639-2221

Russ Angwin
PO Box 20437
Billings, MT 59104-0437
252-4138

Billings Airport Section - 5103
Tim Kaczmarek
PO Box 20437
Billings, MT 59104-0437
256-3485

Custer/Hysham Section - 5104
Tom Gilreath **(Custer)**
PO Box 86
Custer 59024-0086
856-4810

Hardin Section - 5106
Carson Buffington
PO Box 483
Hardin, MT 59034-0483
665-3666

Busby Section - 5107
Justin Schindler
PO Box 224
Busby, MT 59016-0224
592-3628

Laurel Section - 5109
Bob Nelsen
6727 Laurel Airport Rd
Billings MT 59106
656-5083

Bridger Section - 5110
Eli Damjanovich
PO Box 49
Bridger, MT 59014-0049
662-3637

Red Lodge Section - 5111
Kyle DeMars
PO Box 445
Red Lodge, MT 59068-0445
446-2811

Columbus Section - 5112
Truman Bovee
PO Box 1146
Columbus, MT 59019-1146
322-4491

Big Timber Section - 5113
Paul Groshans
PO Box 977
Big Timber, MT 59011-0977
932-5371

Administration Section - 5190
Tom Tilzey
PO Box 20437
Billings, MT 59104-0437
252-4138

Administrative Section - 5191
John Trewhella
PO Box 20437
Billings, MT 59104-0437
252-4138

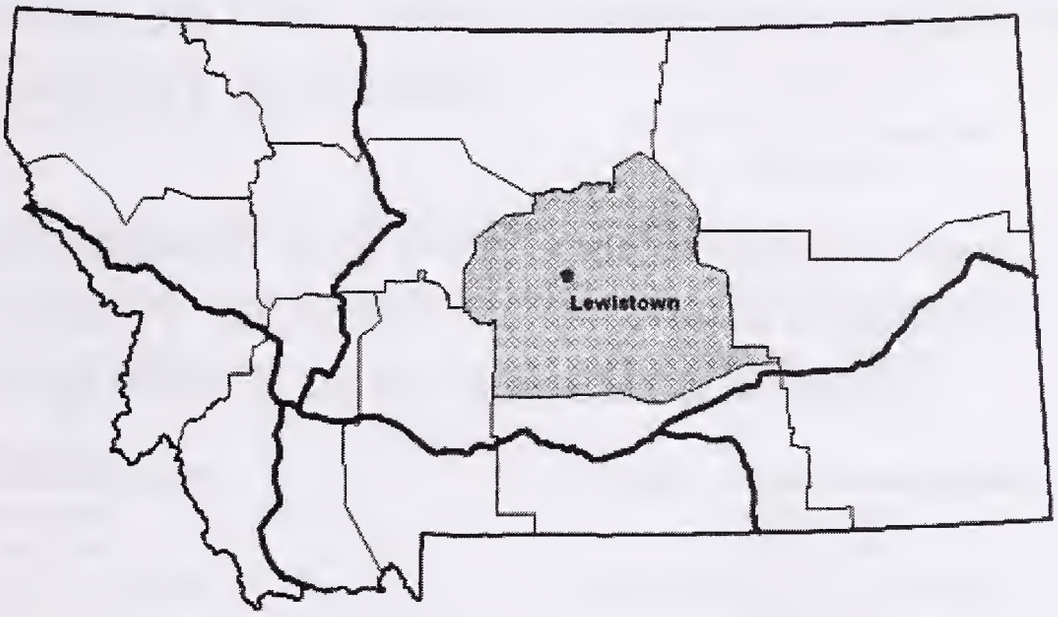
Administrative Section - 5192
Art Krantz
PO Box 20437
Billings, MT 59104-0437
252-4138

Back to Top

MDT Maintenance Division

Lewistown Maintenance Area
1620 Airport Road
PO Box 491
Lewistown, MT 59457-0491

(406) 538-1300 - office
(406) 538-3128 - fax
Division 53



Doug Lutke, Area Maintenance Engineer

538-1301 (office)
366-1301 (cell)
dolutke@mt.gov

Maintenance Superintendent

Duane Hartman
538-1302
366-1302 (cell)
ehartman@mt.gov

Equipment Shop Superintendent

Ron Joslyn
538-1330
rjoslyn@mt.gov

Maintenance Sections

Lewistown Section - 5301
Ken Schanz
PO Box 491
Lewistown, MT 59457-0491
538-1310

Roy Section - 5302
Bill Combs
PO Box 67
Roy, MT 59471-0067
464-7551

Mobridge Section - 5303
Ralph Willmore
HC 89, Box 32
Roy, MT 59471-9704
464-7511

Grass Range Section - 5304
Jon Kaufmann
PO Box 813
Grass Range, MT 59032-0813
428-2240

Winnett Section - 5305
Dave Harris (Acting)
PO Box 171
Winnett, MT 59087-0171
429-5831

Melstone Section - 5306
Harry Barnett
PO Box 280
Melstone, MT 59054-0280
358-2038

Roundup Section - 5307
Dave Tomlin
1150 Main Street
Roundup, MT 59072
323-2075

Ryegate Section - 5308
Roger Puckett
PO Box 171
Ryegate, MT 59074-0171
568-2380

Harlowton Section - 5309
Kayle Allen
PO Box 826
Harlowton, MT 59036-0826
632-5818

Stanford Section - 5312
Wayne Kelly
PO Box 96
Stanford, MT 59479-0096
566-2501

Back to Top

Purpose of Maintenance

1. **Maintenance preserves the original constructed roadway, structures, right-of-way, traffic aids, buildings, and other facilities in the safest and best condition reasonably possible.**

2. **Maintenance provides services necessary to keep traffic moving over the highways in a realistically safe manner.**

NOTE: Operation of MDT maintenance equipment requires a Type A Class II Commercial Drivers License with medical endorsement and hazard tanker endorsement. License with appropriate endorsements is required within 30 days of employment.

Trainees Pop Quiz

Truck Driver Test

Part A:

Match the following terms associated with trucks and attachments to their correct definition. Write the letter on the blank.

_____ 1. Device for automatic control of speed.

_____ 2. Pressure in pounds per square inch.

_____ 3. Condition of overloading engine when it is below efficient RPM.

_____ 4. Ridge of loose material.

_____ 5. Condition in which truck and trailer become jammed together at an acute angle.

_____ 6. Twisting or turning force exerted on a shaft.

_____ 7. Double axle drive unit.

_____ 8. Hydraulic or mechanical lifting device.

_____ 9. Device used to develop pressure in the transfer of fluids.

_____ 10. Powered or moved by liquid under pressure.

A. Torque	G. Pump
B. Windrow	H. Hydraulic
C. PSI	I. Lug
D. Governor	J. Jackknife
E. Tandem	K. Jack

Part B:

Match single-axle and tandem-axle trucks and attachments to their correct uses. Write the correct answer on the blanks.

_____ 1. Used to haul light loads, remove snow, and pull small trailers.

_____ 2. Used to spread abrasive on icy roadways.

_____ 3. Used as a carrier for equipment, usually pulled by tandem.

_____ 4. Used to remove snow from roadway.

_____ 5. Used to haul heavy loads, remove snow and pull small trailers.

A. Tandem-axle truck
B. Snowplow
C. Tilt trailer
D. Single-axle truck
E. Sander

Part C:

Circle the correct answer.

1. A method used to stay out of skids during icy winter driving is:
   A. Keeping speed well below dry road speeds.
   B. Avoiding applying brakes too suddenly or too hard.
   C. Making no sudden changes in speed, gears, or direction.
   D. All of the above.

2. Needless waste of fuel is the result of:
   A. Speeding.
   B. Shifting into high gear too soon.
   C. Low tire pressure.
   D. All of the above.

3. When a MDT vehicle is involved in an accident, the amount of damage which must be reported is:
   A. Amount doesn't matter. All accidents need to be reported.
   B. Over $25.
   C. Over $100.
   D. Over $250.

4. In selecting the proper gear for driving downhill, a good rule to follow is:
   A. Use two gears higher than would be needed to go up.
   B. Use one gear lower than is needed to go up.
   C. Take truck out of gear and coast.
   D. None of the above.

5. Progressive shifting is:
   A. Shifting at the speed in which engine develops the maximum horsepower.
   B. Determining the highest gears in which one can start with a load.
   C. Going through the gears during vehicle acceleration in such a way as to accelerate the engine in each gear only up to the rpm required permitting picking up the load easily in the next gear.
   D. All of the above.

6. A clutch brake was designed:
   A. As an auxiliary brake when the regular brake system fails.
   B. To be used with unsynchronized transmissions.
   C. To be used with synchronized transmissions.
   D. All of the above.

7. Upon loss of the brake air pressure or reduction of air pressure:
   A. The brakes will lose their power to stop.
   B. The brakes will revert to mechanical and operator will need to exert more pressure.
   C. The parking brake will automatically apply.
   D. All of the above.

8. To start a diesel:
   A. Set the parking brake, set transmission in neutral, depress the clutch pedal, and press starter button for less than 20 seconds.
   B. Put transmission into low range, depress fuel pedal, and crank engine for 60 seconds.
   C. Inject ether into the cylinder for 60 seconds and then crank the engine.
   D. None of the above.

9. A vehicle may legally exceed the speed limit:
   A. When plowing snow.
   B. In an emergency.
   C. During daylight.
   D. None of the above.

10. Where can an operator find the correct tire air pressure for his/her truck?
   A. The sidewall of the tire.
   B. The Department PM Manual.
   C. A decal posted on the truck.
   D. Manufacture's Operating Manual.

11. How long should you idle the engine before shutting down?
   A. 5 to 10 minutes.
   B. 3 to 5 minutes.
   C. 1 to 3 minutes.

12. Why is a tachometer helpful in the operation of a diesel engine?
   A. To help drivers operate engine at the most economical RPM's.
   B. To keep engine from over speeding.
   C. To give charging rate of generator.
   D. To give hydraulic pressure.

13. Which is part of the pre-trip operation?
   A. Checking coolant levels?
   B. Checking wear and play in belts.
   C. Checking oil level in crankcase.
   D. All of the above.

14. When refueling, you should:
   A. Smoke a cigarette.
   B. Leave the engine running.
   C. Turn the engine off.
   D. Use ether.

15. When shutting down a diesel, you should:
   A. Take cap off of radiator.
   B. Idle the truck for 3 to 5 minutes.
   C. Put the truck into low gear.
   D. Turn off the engine as soon as you stop.

16. When driving on icy roads, which <u>won't</u> you do?
   A. Go faster than normal.
   B. Drive ½ the normal speed.
   C. Use chains.
   D. Brake carefully.

17. Which of the following might cause problems for snowplows?
   A. Expansion joints on bridges.
   B. Cattle guards.
   C. Railroad tracks.
   D. All of the above,

18. When plowing on an two lane overpass, the snow should be:
    A. Pushed over the edge onto the road below.
    B. Left on the bridge.
    C. Moved to the other lane.
    D. Piled on the shoulder of the bridge.

19. The truck's blind spots make it necessary to:
    A. Avoid unnecessary lane changes.
    B. Give ample time for other drivers to see directional changes.
    C. Coordinate intended movement with the speed of traffic.
    D. All of the above.

20. Which of the following <u>would not</u> be an acceptable practice?
    A. Cleaning shoes of slippery materials?
    B. Maintaining a firm grip on the hand hold while entering and leaving the truck?
    C. Performing a thorough pre-operation inspection before driving any department equipment?
    D. Leaving trash on the truck's floor.

21. The reason for doing preventive maintenance program is:
    A. For the safety of the operator and the public.
    B. To detect mechanical failures before they cause major repairs.
    C. To promote longer serviceable life of the equipment.
    D. All of the above.

22. Highway employees can assist the public in which of the following ways?
    A. Call a wrecker.
    B. Pull a car out of a ditch.
    C. Tow a vehicle to town.
    D. Call Law Enforcement on the radio for assistance.

23. Loaded truck weight are limited to
    A. No limits for MDT trucks.
    B. 10,000# on single axle trucks.
    C. 20,000# on single axle trucks.
    D. 34,000# on single axle trucks.

24. Upon loss of the brake air pressure or reduction of air pressure,
    A. the ability to stop is completely lost.
    B. the brakes will revert to mechanical and operator will need to exert more pressure.
    C. the parking brake will automatically apply.
    D. all of the above.

25. Uneven tire wear is due to
    A. incorrect tire inflation.
    B. front end out of alignment.
    C. shifting improperly.
    D. Both A and B.

Part D:

Check the items which would be duties and responsibilities of an MDT truck driver.

____ 1. Treat the mechanics as your friends.

____ 2. Leave maintenance to the next person on shift.

____ 3. Make complete inspection of your truck before trip; don't drive it until everything is in good working order.

____ 4. Avoid abusing the truck in any way.

____ 5. Run engine at maximum rpm when possible.

____ 6. Keep complaints within house and not in public.

____ 7. Learn to recognize equipment defects immediately; report symptoms to the immediate supervisor as soon as possible.

____ 8. Perform daily or shift maintenance.

____ 9. Promote good public relations.

____10. Handle all road failures strictly according to departmental policies; report to proper authority.

Characteristics of a Competent Worker

- ✓ **Follows safety procedures at all times.**
- ✓ **Takes directions readily. Follows MDT policy.**
- ✓ **Practices conservation of material and equipment.**
- ✓ **Checks equipment before & after operation.**
- ✓ **Is punctual.**
- ✓ **Is courteous to the public.**
- ✓ **Is an active team member.**

Public Relations

- ✓ **Attitude**
- ✓ **Appearance**
- ✓ **Traffic Law Observance**
- ✓ **Highway Courtesy**
- ✓ **Highway Communications**

Policy & Procedures

- ✓ **Drug & Alcohol Policy**
- ✓ **Safety Policy:** *See maintenance safety pamphlet*
- ✓ **Disciplinary Policy**
- ✓ **Personal Use of Department Equipment Policy**
- ✓ **Non-MDT personnel in Department Equipment Policies**

Module 2: MDT Policy & Procedure / Safety

In Case of Accident
Post Accident Testing Requirements / Diagram for Testing
Safety Procedures for Truck Operation
Safety and Accident Report
What To Do If…

Purpose:

To provide safety information to help protect self, co-workers, and MDT equipment on the job.

Objectives:

- ✓ **Learn safety procedures.**
- ✓ **To build confidence in dealing with emergency situations.**
- ✓ **Learn procedure following an accident.**
- ✓ **Learn Testing Policy.**

In Case of Accident

1. **NOTIFY THE OFFICE**
   The office will then notify the proper authorities.

2. **AID THE INJURED**
   Do not move the injured individuals unless absolutely necessary. Warn other drivers.

3. **RECORD FACTS ABOUT YOUR VEHICLE**
   Complete all information concerning your vehicle.

4. **OBTAIN FACTS ABOUT OTHER VEHICLES**
   It is important to get the name, address, vehicle registration, and driver's license number of other driver(s) involved.

5. **OBTAIN FACTS ABOUT INJURED PERSON(S)**
   It is very important to obtain name, age, address, and nature of injury of anyone injured.

6. **RECORD FACTS ABOUT OTHER PROPERTY DAMAGE (NON-VEHICULAR)**
   Complete all information concerning damage to other property.

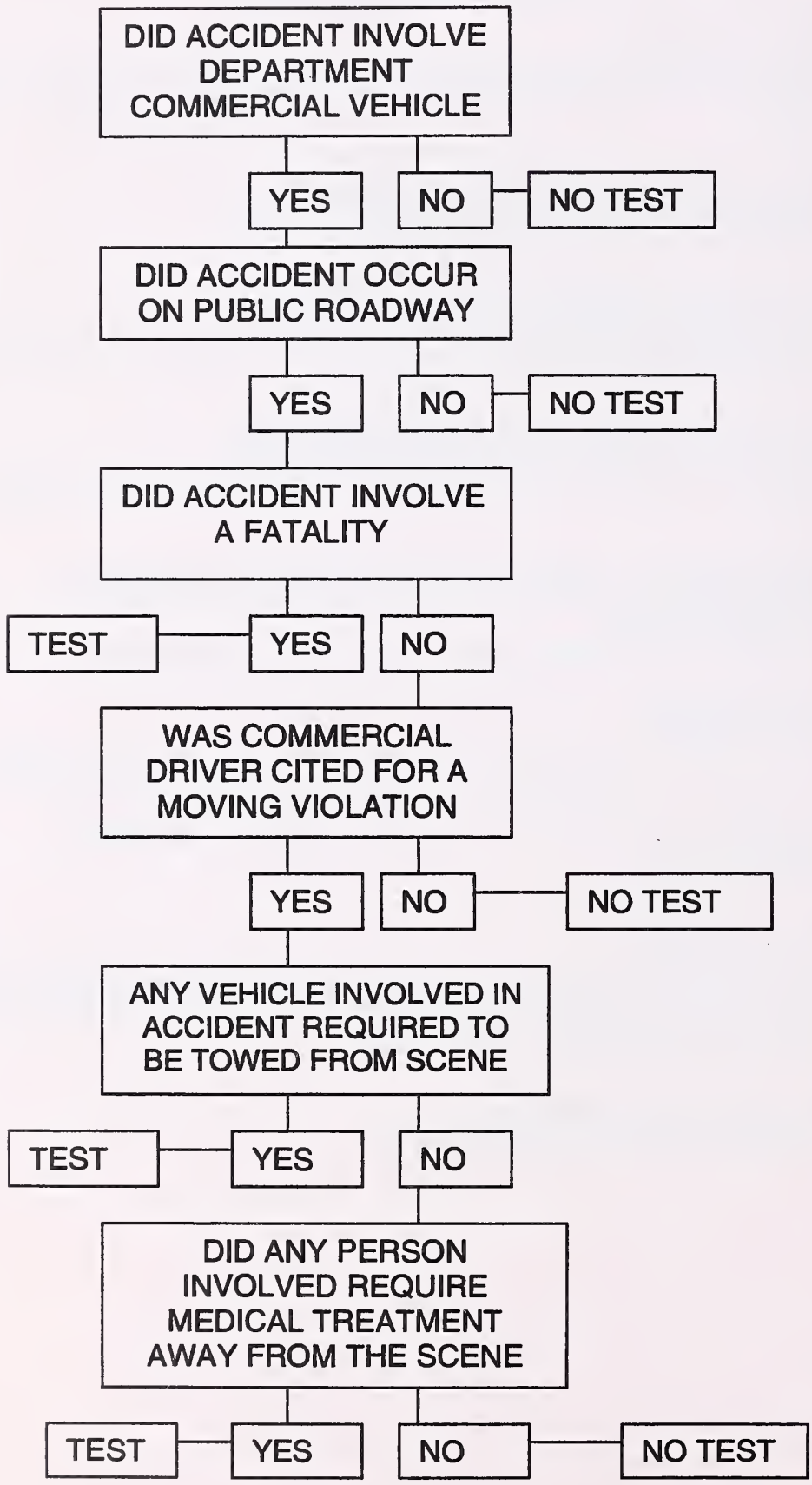
7. **GET WITNESSES**
   Get the names and addresses of all available witnesses to the accident.

8. **CALL RISK MANAGEMENT & TORT DEFENSE DIVISION**
   (406) 444-2421

9. **DON'T COMMENT**
   Do not make any statement concerning the assumption of liability. Give out only that information required by authorities. Do not sign any statement except for an authorized representative of the RMTD.

10. **DESCRIBE THE ACCIDENT**
    Complete the State Report of Incident.

Post Accident Testing Requirements Diagram for Testing



Safety Procedures for Truck Operation

- ✓ **Know your operator's manual.**
- ✓ **Perform pre-operations inspection.**
- ✓ **Enter and exit facing truck.**
- ✓ **Wear seat belts.**
- ✓ **Never run truck in closed shed.**
- ✓ **Control speed for limits/conditions.**
- ✓ **Set brakes/block wheels when parking truck.**
- ✓ **Keep windshield, windows, and mirrors clean.**
- ✓ **Shut down engine when refueling.**
- ✓ **Keep the cab free of debris.**
- ✓ **Secure all loads.**

USE COMMON SENSE AND GOOD JUDGEMENT!

SAFETY IS UP TO YOU!

STATE OF MONTANA
RISK MANAGEMENT & TORT DEFENSE
DEPARTMENT OF ADMINISTRATION
P.O. BOX 200124-HELENA, MT 59620
(406) 444-2421 FAX (406) 444-2592

REPORT OF INCIDENT

COMPLETE ONLY THE SECTION THAT APPLIES TO YOUR LOSS

VEHICLE ( ) PERSONAL INJURY ( ) PROPERTY DAMAGE / OR LOSS ( )

Reporting Person: 1	Job Title:	
Department: 2	Division: 3	Phone: 4
Date/Time of Incident:	Location of Incident:	

VEHICLE LOSS

ACCIDENT INFORMATION

Were Police Notified? Yes ( ) No ( )	Police Department Name:
Investigating Officer's Name:	Investigation Officer's Phone Number:

Were Citations Issued? No ( ) Yes ( ), to STATE Vehicle Driver ( ) OTHER Vehicle Driver ( )

Weather Conditions: Clear? ( ) Rain? ( ) Snow? ( ) Other? ( ) Describe

Roadway Conditions: Dry? ( ) Wet? ( ) Icy? ( ) Snow packed? ( ) Other? ( ) Describe

Light Conditions: Daylight? ( ) Darkness? ( ) Dusk? ( ) Dawn? ( ) Other? ( ) Describe

Vehicle Speed: STATE Vehicle? OTHER Vehicle?

License No. _____	Attachment No. _____	Attachment No. _____
Est. Repair _____	Est. Repair _____	Est. Repair _____

Describe Accident/Incident in detail:

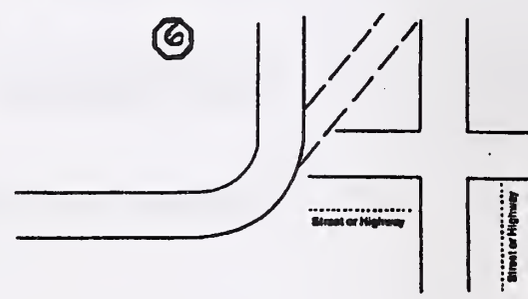
5

(use blank paper for additional information)

Accident Diagram

INDICATE NORTH BY ARROW

6



Signature of Driver: 7	Date:

STATE VEHICLE INFORMATION

Department Owning Vehicle: 8	Phone No.
Driver's Name:	Phone No.

For What Purpose was the Vehicle Being Used?

Plate No.:	VIN No.:	Make/ Model/Year:
Location Where Vehicle May Be Seen (Address)?		Equip. No.:

R VEHICLE INFORMATION (9)

/State:	VIN No.:	Make/Model/Year:
Name:		
		Phone No.:
Name:		
		Phone No.:
e Co.:	Policy No.:	Phone No.:

PANTS (10)

	Address:	Age	ST Veh	Other Veh	Injured y - n	Describe Injury

ESSES

	Address:	Phone:

PERSONAL INJURY

Injured: (11)	Address:	Phone:

f Injury:

e clearly how accident/injury occurred:

(use blank paper for additional information)

PROPERTY DAMAGE / OR LOSS

operty ( ) Other ( ) (12)

e clearly how property damage occurred:

(use blank paper for additional information)

y Description (Give make, model, serial number when applicable)

(use blank paper for additional information)

	Reporting Person's Signature: (13)
	Supervisor's Signature: (14)
	Department Official's Signature: (15)

REPORT OF INCIDENT COMPLETION INSTRUCTIONS

- **Incident Reports do not need to be typed. The report can be submitted to Risk Management Tort Defense (RMTD) in the reporting person's handwriting as long as the report is legible and can be understood by the adjuster.**

- **Remember that this Report of Incident is used by all state agencies to report to the Department of Administration. As a result, the form may not always seem to fit the Department's reporting requirements. Simply do the best you can to assure that RMTD has the information the adjusters need to review and investigate each incident.**

The following are some comments to help answer some common questions regarding completion of the Report of Incident form. The number shown for each item corresponds to the number of the entry field on the Report of Incident form contained in this manual.

o(1) The name of the individual completing the report goes here. In the event of an accident involving a State vehicle, the **operator** is to complete this form.

o(2) The correct entry for this field of entry would combine these elements: **Department/District.** A report originating from Butte would have the following entry: **Transportation/Butte.**

o(3) The correct entry for this field of entry would combine these elements: **Area/Section (if applicable).** A report originating from Alberton would have the following entry: **Missoula/Alberton.**

o(4) This entry should be a phone number where the **reporting person** can be reached.

o(5) This section needs to be a description of the event to the best of the reporting person's knowledge. Do not simply repeat what is contained on the Citizen Claim Form in the case of an incident involving the public. Note: If additional space is needed, please use a separate sheet of paper and attach to the Incident Report.

o(6) Complete the Accident Diagram if possible. This provides valuable information to the RMTD adjuster and also to Department employees who review the accident.

o(7) The reporting person **must** sign here. This verifies that the accident description and other information above are correct to the best of the reporting person's knowledge.

o(8) This portion of the form is used to report information about the Department vehicle involved in the accident. The correct entry for this field would be: **Transportation.**

o(9) This section is used to report information about a private citizen's vehicle involved in an accident. This can be used for those accidents involving Department vehicles/drivers and also for private citizen-only accidents that take place on roads that the Department maintains.

o(10) This section is used to identify those individuals involved in the accident. Occupants in both the Department vehicle and the private vehicle should be listed. **Note: Completion of this section does <u>not</u> constitute filing a workers compensation claim! This needs to be done on the appropriate form provided by the State Fund.**

o(11) This section is used to report injuries that happen to the public while on state property other than those reported under the vehicle accident category. Examples of this would be: slips and falls in rest areas, pedestrian injuries along or on roads maintained by the Department, injuries in parking lots or facilities owned or controlled by the Department. In other words, all injuries that could possibly result in some degree of liability by the Department or the State are to be reported using this section. **Note: Do <u>not</u> use this section to report on the job injuries by employees of the Department! This is used to report injuries to private citizens only.**

o(12) This section is used to report damage or loss of State property as well as damage to property owned by others. Remember that State vehicle damage is reported elsewhere on the form, so would not be reported in this section. Some examples of what would be reported here would be: guardrail, fencing, signs, lampposts, etc. that are

damaged as a result of a vehicle accident. Also, buildings and facilities that are damaged by fire, earthquake, high winds and/or snow accumulations. In addition, property that is damaged by vandalism or is stolen, needs to be reported here.

o(13) The person completing the report signs here. Note that if this person is involved in a vehicle/equipment accident he/she will also sign the report on the front of the form under the detailed accident description.

o(14) The reporting person's supervisor signs here. Note that if the reporting person were a supervisor, the next person in the supervisory chain would be the appropriate person to sign.

o(15) The District Administrator, the Maintenance Chief or the Construction Engineer would be the appropriate person to sign here.

Note: The concern with all of the signatures is that it verifies that the personnel in the Department who need to have knowledge about the occurrence have in fact reviewed the report.

What To Do If You.....

Encounter a disabled Vehicle.

- **Take note of location (mile marker, direction of travel).**
- **Call into the office and give license plate number and location before you get out of your truck.**
- **Check for motorist(s) in car.**
- **Radio in for removal if vehicle presents hazard to others.**
- **Take care in plowing, as the state may be found accountable if damage to car is reported.**

Encounter a stranded motorist.

- **Call office and give license plate # and location before approaching the vehicle.**
- **Assess urgency of situation.**
- **You may not give a motorist(s) a ride.**
- **You may not tow a car.**
- **You can allow motorist(s) to warm up in your cab.**
- **You can call for a tow truck through your local dispatcher at the motorist's request.**
- **Remember that your primary responsibility is to keep the roads open and safe for travel. Weather and road conditions will help determine if it is prudent to stay with the motorist(s) until help arrives.**

Encounter Road Kill.

- **You may move animal(s) from road with the snowplow.**
- **You may need to contact a brand inspector if the animal(s) is livestock.**
- **Take note of the location (milepost, direction of travel, side of road).**
- **Radio in location and number of animal(s).**
- **When possible, be considerate when "parking" the carcass....not in water source, landowner's yard, or in sight of driving public.**

Encounter an Accident.

- **Call into office with location.**
- **Secure the area to eliminate further damage to life, property, or environment.**

- Assess urgency of situation.
- Use the emergency assistance channel, if available.
- Do not move victim(s) or vehicles unless situation is life threatening.
- Offer medical assistance. (Be sure to protect yourself with your blood borne pathogens.)
- Take names and other information from witnesses.

Encounter Hazardous Waste.

- Call office immediately with location.
- Protect self and others from exposure.
- Secure the sight to eliminate further damage to life, property, and environment.
- From a safe distance, take note of the following to help identify the hazardous material:
    1. Method of product identification: Placard, Bill of loading.
    2. Product : Gas, Liquid, Gel, Solid, Powder, Granular
    3. Packaging: Container, Truck, Rail Car.
    4. Estimate quantity released. Estimate quantity potentially left to release.
    5. Dangers: Explosion, Fire, People, Property, Water, Air, Private Property, Public Property.
- Identify Shipper / Owner / Responsible Party
- Identify Other Assistance Requested: Fire, M.H.P., Ambulance, F.W.&P., M.D.T., Health, D.E.S., D.N.R.C., D.S.L., Agriculture
- Area Office will Notify:

  L.E.P.C.
  State D.E.S.
  Area Maintenance Chief.
  Helena Maintenance Division Administrator / D.E.S. Coordinator.
- Helena Maintenance Division Administrator / DES Coordinator will notify and continually update the Director.
- MDT personnel will not assume control of a Hazardous Material site other than to provide initial traffic control and support the Incident Commander upon request.

As a snow plow driver operating in hazardous conditions, it is likely that you will be the first to encounter emergency situations. Remember your *first priority* is to *keep yourself safe* so you can keep the roadway safe for travel. It may be necessary to continue plowing or sanding to ensure other traveler's safety. Each emergency situation is unique, but quick and thorough assessment of the situation at hand will help you prioritize what actions you need to take to provide maximum assistance and safety.

Acronym Key

M.H.P.-Montana Highway Patrol
F.W.&P.-Fish Wildlife and Parks
M.D.T.-Montana Department of Transportation
D.E.S.-Disaster and Emergency Services
D.N.R.C.-Department of Natural Resources and Conservation
D.S.L.-Department of State Lands
L.E.P.C.-Local Emergency Planning Coordinator

Module 3: Documentation Forms

Maintenance and Equipment Time Sheet
Operator Usage Form
Mini 70 Cheat Sheet

Purpose:

To provide basic documentation information for maintenance and equipment time sheets, operator usage forms and mini 70's.

Objectives:

- ✓ **Learn proper documentation methods.**
- ✓ **Provide accurate documentation.**
- ✓ **Familiarize new personnel with documentation forms.**

Date	Crew	Cls.	Project/Equip.	Acct.	Class Code	Start	End	Reg. Time Expn.	Reg. Time Hrs.	Diff. Rate	Diff. Hrs.	OT/Comp. Expn.	OT/Comp. Hrs.	OT Diff. Rate	OT Diff. Hrs.	Shift Diff. Hrs.	Other Comp. Expn.	Other Comp. Amt.	Equip. No.

Employee Leave Request

Department policy requires prior approval of sick leave (for scheduled appointments) and annual leave.

*(1) Sick (Personal or family injury or illness, family death, other) (2) Vacation (3) Other _____
(specify military, jury, leave without pay, or comp time taken)

	Sat.	Sun.	Mon.	Tues.	Wed.	Thurs.	Fri.	Total Hours
Dates								
Leave request type*								
Hours								
Supervisor's Initials (if approved)								

Explanation (Hours gone) _____

Time off due to on-the-job injury ❑

Disapproved (specify reason) _____

Maintenance and Equipment Expense Codes

Other Compensation

2401 In-state Personal Car Mileage
2406 Construction Bureau Allowance
2407 In-state Meals (not overnight) *taxable
2408 In-state Lodging
2409 In-state Car Rental (gas for rental)
2410 In-state Meals (overnight)
2460 Permanent Travel Advance
2461 Temporary Travel Advance
2809 Registration Fee

Payroll Expenditures (* 2002 Account)

1101 Regular pay
1102 OT 1-1/2 Time
***1103 Sick Leave**
***1104 Annual Leave**
*1105 Holiday Pay
*1106 Military Leave
*1107 Jury Duty
*1007 Comp Time Earned
*1008 1-1/2 Comp Time FLSA Earned
*1058 1-1/2 Comp Time FLSA Taken
*1090 Leave Without Pay

Payroll Expenditures (continued)

1111 Conference/Seminar
1112 Differential
1154 2-1/2 Time OT
*1158 Comp Time Taken

Special Leave Expenditures

1003 Sick Leave—on-the-job injury
1004 Annual Leave—on-the-job injury
1005 FLSA Comp Time Taken—on-the-job injury
*1092 FMLA LWOP

Special Leave Expenditures (continued)

*1013 FMLA Sick Leave
*1014 FMLA Annual Leave
*1015 FMLA Exempt Comp Time
*1093 FMLA/On the Job Injury LWOP
*1023 FMLA/On the Job Injury Sick Leave (6-day waiting)
*1024 FMLA/On the Job Injury Annual Leave

EMS-1

State of Montana
Department of Highways

OPERATOR USAGE REPORT

UNIT NO. ☐☐ - ☐☐☐☐

CREW NO. ☐☐☐☐

ODOMETER or HOURMETER Begin: _____ End: _____

Area	Cls.	Project	Agr.	Un.	Wk.	Acnt.	Beg. ___/___/___ S	S	M	T	W	T	F	End ___/___/___ S	S	M	T	W	T	F	Tot. Hrs.	Oper. Init.

LEVEL I SERVICE ☐ Quarts Add Oil ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Total Add Oil ☐☐

COMMENTS or WORK REQUESTED: _____

_____

_____

Operator Usage Report

Mini 70 Cheat Sheet

System = Route or Highway plowed on
Number = Route number or Highway number
Beginning & Ending Milepost = Always ascending
Activity Number = Work performed number
Work Units = Actual miles plowed and sanded ***(Amount accomplished / unit measurements vary pending on activity number)***
Hours Worked = Total hours worked (***Note the decimal)(Must match time slip hours)***
State Equipment = First three digits from the number of truck ***(Located on license plate or dump box)***
Usage Hours = Number of ***miles or hours*** you used the equipment
Class = Look at material codes on bottom of mini 70
Quantity = Amount of material, sand, or product used
Special = stock pile number

MAINTENANCE FORM 70M — DAILY ACTIVITY REPORT (MINI 70)

CREW NUMBER _____

DATE	ROUTE: SYSTEM	ROUTE: NUMBER	MILEPOST: BEGINNING MILEPOST	MILEPOST: ENDING MILEPOST	COST CENTER OR STOCKPILE	ACTIVITY NUMBER	WORK UNITS COMPLETED	HOURS WORKED	STATE EQUIPMENT CLASS	USAGE HRS/MI.	ASSIGNED HOURS	CLASS	QUANTITY OR COST
			+ .	+ .			.	.					.
			+ .	+ .			.	.					.
			+ .	+ .			.	.					.
			+ .	+ .			.	.					.
			+ .	+ .			.	.					.

MATERIALS
01 SAND
03 COVER MATERIAL
04 GRAVEL
05 OIL MIX
06 EMULSIFIED OIL (CRS,CMS)
08 PIT RUN
09 ROAD OIL
10 DE-ICER
54 SALT

MISCELLANEOUS INFORMATION _____

EQUIP. # ____
END ODOMETER ____
BEG ODOMETER ____
MILES DRIVEN ____

EMPLOYEE'S SIGNATURE _____

SUPERVISOR'S APPROVAL _____

SELECTED WINTER
MAINTENANCE MANAGEMENT SYSTEM
EQUIPMENT CLASS CODES

USEAGE MEASUREMENT PER MILE OPERATED

CLASS	DESCRIPTION
	PICKUPS
071	Pick ups – ½ Ton 4 x 2
072	Pick ups – ½ Ton 4 x 4
090	Trucks – One Ton All
	DUMP TRUCK- Under 250 HP
192	4 x 2 Diesel
	DUMP TRUCK - or 4 x 4 over 250 HP
271	4 x 2 Diesel
272	4 x 4 Diesel (Including Wing Plow)
	TRUCK – Tandem Axel
292	6 x 4 Nurse Trucks
293	6 x 4 Transports
294	6 x 4 Dumps

USEAGE MEASUREMENT PER HOUR OPERATED

	FRONT END LOADERS
322	Up to ¾ yd.
323	1 – 1-3/4 yd.
324	2 – 3 yd.
325	Over 3 yd.
326	Loader Backhoes

BLADES

301	Blades (small)
302	Blades (large)

Module 4: Pre-Operational Checks

Under the Hood Checks
Start-Up Procedures
Walk-Around Inspection
Shut-Down Procedures

Purpose:

Familiarize new personnel with best practice safety procedures and maintenance procedures for MDT equipment.

Objectives:

- ✓ **To perform a pre-operational check.**
- ✓ **To correctly start and shut-down a truck.**
- ✓ **To correctly perform operational and post-operational checks**
- ✓ **Learn lubrication facts.**

Pre-Operation, Start-Up, and Shutdown Checklist

Name_____ **Social Security Number**_____

Date_____ **District**_____ **Section** _____

Vehicle_____

A check for correct procedures. NA if not applicable.

Pre-start Checks

Visual Check

_____ Makes a visual inspection
_____ Checks for oil/water leaks
_____ Checks for damage on the truck

Under Hood Checks

_____ Checks radiator coolant levels/cap/hoses
_____ Checks oil levels
_____ Checks battery cables, fluid, connections
_____ Checks air cleaner
_____ Checks drive and fan belts
_____ Leaks in engine compartment
_____ Cracked, worn wiring
_____ Fluid in windshield wiper

Comments:

Start-Up Checks

Cab Checks

_____ Enters cab safely
_____ Checks parking brake
_____ Checks play in clutch
_____ Checks steering
_____ Starts engine/sets idle
Cold or Warm weather start-up
Diesel
Gasoline
_____ Checks oil pressure/gauges
_____ Check for Emergency Equipment
_____ Times air pressure build-up
_____ Checks windshields, windows, mirrors
_____ Checks windshield wipers
_____ Checks horn
_____ Checks lights, turn signals, warning lights

Comments:

Walk-Around Inspection

_____ Checks front wheels, tire, rims, lug nuts, suspension
_____ Drains air tanks correctly
_____ Checks hydraulic reservoir

Checks Right and Left Sides of Truck
_____ Cleans headlights, mirrors, clearance lights
_____ Checks reflectors, tail lights, safety lights
_____ Checks rear tires, wheels, rims, lug nuts, air lines
_____ Checks hydraulic lines to snow plow and sander

Operational Checks

_____ Checks back-up alarm
_____ Checks brakes
_____ Checks for unusual noises/operating conditions
_____ Checks gauges readings/visual inspection
_____ Checks to see loads are riding securely
Comments:

Post-operations checks

_____ Cools down truck properly
_____ Fuels truck properly
_____ Inspects for oil, water, fuel leaks
_____ Cleans cab
_____ Inspects tires, rims, lights, signals
_____ Drains air tank
_____ Check automatic transmission fluid
_____ Reports deficiencies to supervisor

Safety Procedures

_____ Fastens seatbelts
_____ Prevents falls
_____ Doesn't run truck in closed area
_____ Turns off unattended truck
_____ Removes the keys
_____ Relieves pressure before opening/coupling pressurized lines
_____ Turns off truck when refueling
_____ Cleans cab
_____ Doesn't run unsafe equipment
Comments:

Trainer_____

Employee_____

LUBRICATION

Proper lubrication procedures are the key to a good all-round maintenance program. If the oil is not doing its job, or if the oil level is ignored, all maintenance procedures in the world are not going to keep the transmission running or assure long transmission life.

OIL IS IMPORTANT. HERE ARE SOME THINGS IT MUST DO:

- **Provide A Protective Film.**
  Protects surface of heavily loaded parts such as gear teeth and bearings, thus preventing metal contact which causes scoring, scuffing, and seizure.

- **Act As A Coolant.**
  Dissipates heat.

- **Have Sufficient Fluidity.**
  Follows, coats, and cushions all loaded surfaces.

- **Be Chemically Stable.**
  Withstands heat and agitation without separation, gumming-up, oxidizing, or corroding.

- **Be Non-Foaming.**
  Prevents excessive foam and increased volume under severe conditions.

- **Be Free Of Sediment And Water.**
  Prevents sludge and rust.

PROPER OIL LEVEL

Make sure oil is level with filler opening. Because you can reach oil with your finger does not mean oil is at proper level.

ADDING OIL

It is recommended that types and brands of oil not be intermixed because of possible incompatibility.

The exact amount of oil will depend on the model. In every instance fill to the level of the filler opening.

Do not overfill as this will cause oil to be forced out of the case through the mainshaft openings.

Be sure to consult the operator's manual first before adding oil.

Module 5: Truck Operation

Preventive Maintenance
Key Elements of Shifting
Braking Systems
Grades
Communication

Purpose:

To familiarize personnel with safe and economic driving best practices.

Objectives:

- ✓ **Learn preventive maintenance best practices.**
- ✓ **Learn up-grade and down-grade driving techniques.**
- ✓ **Learn speed control in town and over the road.**
- ✓ **Learn backing techniques.**
- ✓ **Familiarize new personnel with correct radio use.**
- ✓ **Familiarize new personnel with safety procedures for truck operation.**

PREVENTIVE MAINTENANCE

Truck Driving Operation Checklist

Name_____ Social Security _____

Date_____ District_____ Section _____

Vehicle_____

Check is acceptable, NA if not applicable.

General Truck Operation

Operation of Truck

_____ Use signals/warning lights
_____ Use of the two-way radio

Shifting Sequence

_____ Uses clutch correctly
_____ Uses correct RPM's
_____ Uses double clutch method

Braking Control

_____ Uses downshifting correctly
_____ Uses air brakes correctly
_____ Uses jake brake correctly

General Driving

_____ Straight driving
_____ Serpentine driving
_____ Back correctly
_____ Parks truck correctly

Left and Right Corners

_____ Proper lane
_____ Proper signals
_____ Safe speed/gear
_____ Proper clearance

Town Driving

_____ Correct gear/smooth shifting
_____ Speed control
_____ Stopping
_____ Proper lane position
_____ Following distance
_____ Uses mirrors correctly
_____ Attention
_____ Safety zones
_____ Pedestrians/bicyclist

Over-Road Driving

Level Driving.

_____ Proper shifting\gear
_____ Uses mirrors effectively
_____ Correct lane
_____ Speed control
_____ Smooth shifting
_____ Brake control
_____ Following distance
_____ Passing
_____ Proper clearance
_____ Proper signals

Up and Down Grade-Driving

_____ Proper shifting\gear
_____ Safe speed
_____ Proper brake use
_____ Proper lane

Fully-Loaded Truck

_____ Load a truck
_____ Dump a truck
_____ Stock pile
_____ Patching

Safety Procedures

_____ Checks box for rocks and debris
_____ Wears seat belts
_____ Yields the right-of-way
_____ Obeys traffic regulation
_____ Drives at safe speeds
_____ Prevents fatigue
_____ Practices defensive driving
_____ Carries correct loads
_____ Dumps safely

Trainer:_____

Employee:_____

Follows Safety Precautions

_____ Controls speed to match road conditions visibility

_____ Avoids sudden braking action

_____ Is alert to plowing problems-

Drifts

Slush

Melting snow pack

_____ Is alert to hazards on the road

Railroads

Cattleguards

Bridges

Guardrails

Traffic

_____ Prevents traffic problems

_____ Discharges snow on the edge of bridges/overpasses

_____ Sands carefully in heavy traffic

_____ Prevents visibility problems for traffic

Comments:

Trainer_____

Employee_____

Preventive Maintenance Checklist

Name_____ Social Security Number_____

Date_____ District_____ Section _____

Vehicle_____

Check for acceptable performance. NA if not applicable.

PM Inspections

_____ Greases dump box, lifts, and pivot points
_____ Checks radiator coolant levels/cap
_____ Checks oil levels
_____ Checks hydraulic reservoir
_____ Checks battery connections and fluid
_____ Checks air cleaner
_____ Checks drive and fan belts tension and wear
_____ Fills windshield fluid and checks blades
_____ Checks lights, turn lights, emergency flashers, safety lights
_____ Checks back-up alarm
_____ Checks lug nuts

Servicing the Truck

_____ Lubes chassis
_____ Changes engine oil & oil filter
_____ Services/changes air cleaner
_____ Checks battery water and clean connections
_____ Checks fluid levels-radiator, powersteering, transmission, brakes, differential, windshield washer, transfercase
_____ Inspects air induction system for wear or leaks
_____ Checks air tanks and lines, exhaust system, springs
_____ Checks undercarriage, drive lines, exhaust system for damage
_____ Checks belts
_____ Checks air pressure in tires
_____ Checks tire wear for alignment problems
_____ Checks front wheel hubs.

EMS Reports

_____ Reports deficiencies to supervisor
_____ Fills out Equipment Management System reports
_____ Fills out Unit Service Request Form as needed.

Comments:

Trainer_____

Employee_____

Unit Service Request Form

UNIT SERVICE REQUEST

Make & Type	Unit Number
Date	Mileage or Hours
Work Requested By	
Unit Can Be Found At	

THIS UNIT NEEDS THE FOLLOWING ATTENTION :

Service Job ☐	Tune Up ☐	P.M. ☐
Tire Repair (Location _____) ☐		
Other		
Trouble Symptoms		

Completed_____19____ _____
Shop Foreman

White original to dispatcher or shop foreman. Yellow remains in book
Work performed must be recorded in Service Record and Form 90.

RETAIN SERVICE REQUEST IN FILE JACKET

SHIFTING

DOUBLE-CLUTCHING PROCEDURES

When ready to make a shift:

1. Depress clutch until clutch pedal disengages, being careful **NOT** to engage the clutch brake.

2. Move gearshift lever to neutral.

3. Release pedal to engage clutch. *

   Upshifts- Decelerate engine until engine RPM and road speed match.
   Downshifts- Accelerate engine until engine RPM and road speed match.

4. Quickly depress pedal to disengage clutch and move gearshift lever to next gear speed position.

5. Release pedal to engage clutch.

*** By engaging the clutch with gearshift lever in the neutral position, the operator is able to control the RPM of the mainshaft gears since they are regulated by engine RPM. This procedure enables the operator to match the RPM of the mainshaft gears with those of the mainshaft driven by the vehicle's rear wheels.**

CONSEQUENCES OF POOR SHIFTING HABITS

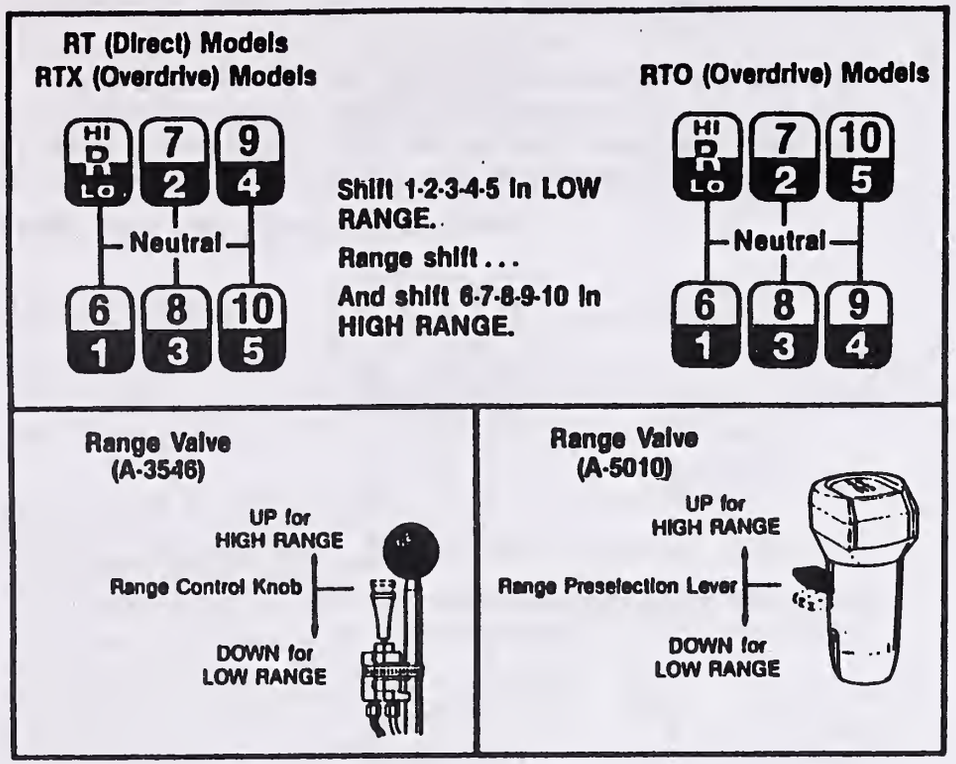
- Shifting in Low Gear Too Soon
  - ✓ Clutch Damage
  - ✓ Blown Engine
  - ✓ Blown Transmission
  - ✓ Twisted Propeller Shaft
- Shifing to High Gear Too Late
  - ✓ Engine Overheating
  - ✓ Damage to Drive Train

SIGNS OF A PROFESSIONAL DRIVER

- Doesn't Grind, Clash, or Forces Gears
- Has Good Timing
  - ✓ Matches Road/Engine Speed with Gear
- Anticipates Changes
- Knows Vehicle RPM and Shift Pattern

Handout 3.4

Shift Lever Patterns and Shifting Controls



Model Designations

R = Roadranger®

T = Twin countershaft transmission.

OR < O = Used as a letter, denotes overdrive model.
X = Denotes overdrive model with a direct shift pattern.

F = Forward position of gear shift lever. Does not affect shift pattern.

6, 9, 11, 12 or 14 x 100 = Nominal torque capacity (Lbs.-ft.).

OR < 5 = Denotes model with conventional gearing.
6 = Denotes New Generation model with "multi-mesh" gearing.

10 = Ten forward speeds.

General Information

Models in this series provide ten forward speeds and two reverse, consisting of a five-speed front section and a two-speed range or auxiliary section. The five gear sets of the front section are used once with the transmission in Low Range, and once again with the transmission in High Range.

You use the easy, one shift lever, Roadranger repeat shift pattern. Low Range and High Range are selected with the Range Control Knob/Range Preselection Lever. It is used once during the upshift sequence and once during the downshift sequence.

Always preselect the range shift as shown in the detailed instructions. After preselection, the transmission will automatically make the synchronized range shift as the shift lever passes through neutral.

"X" and "F" Models

Overdrive models with the letter "X" instead of an "O" in the model designations, such as in RTX-11610, have their full complement of forward and reverse speeds arranged within a direct shift pattern instead of in a standard overdrive pattern.

On the other hand, the letter "F" appearing in the model designations, such as in RTOF-11610, indicates a forward-mounted position of the gear shift lever housing on the transmission and does not affect the shift pattern.

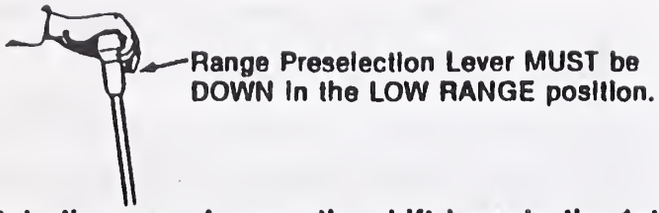
A shift pattern diagram should be in your vehicle. If it has been lost, a replacement may be obtained by writing to: Eaton Corporation, Transmission Division, Service Parts Department, North American Headquarters, P.O. Box 4013, Kalamazoo, MI 49003. Please specify shifting controls used and transmission model number when making request.

Detailed Shifting Instructions

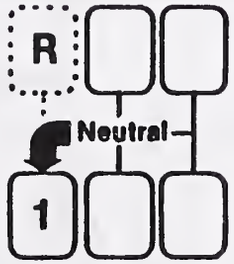
In the following instructions, it is assumed that the driver is familiar with operating heavy-duty trucks and tractors, and can coordinate the movement of the shift lever and clutch pedal to make smooth gear engagements while upshifting or downshifting. Always double-clutch when making lever shifts (see procedure on back cover).

Upshifting

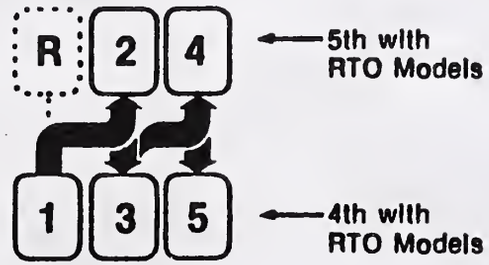
1. Move the gear shift lever into neutral.
2. Start engine and wait for the vehicle's air system to reach normal line pressure.
3. Make sure the Range Preselection Lever is DOWN in the Low Range position.



4. With the clutch disengaged, move the shift lever to the 1st speed gear position. Release the clutch pedal to start vehicle moving.



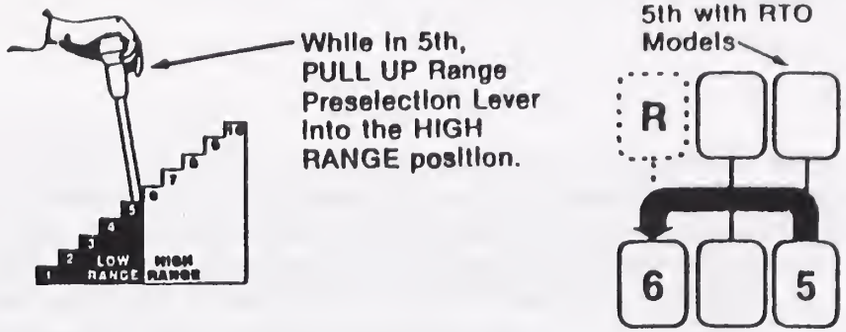
5. Upshift, double-clutching, from 1st through 2nd, 3rd and 4th to 5th while in Low Range.



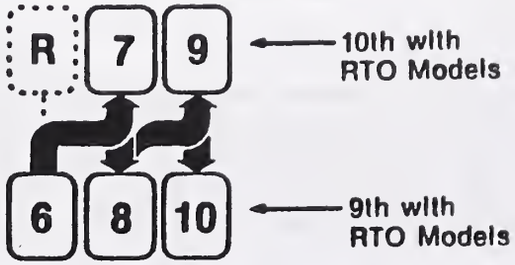
Range shift from Low to High Range . . .

6. While in 5th and ready for the next upshift, PULL UP the Range Preselection Lever and move the shift lever, double-clutching, to the 6th speed gear position. As the shift lever passes through neutral, the transmission will automatically shift from Low Range to High Range.

   CAUTION: Never move the Range Preselection Lever with the shift lever in neutral while the vehicle is moving. Always pre-select the range shift before moving shift lever.

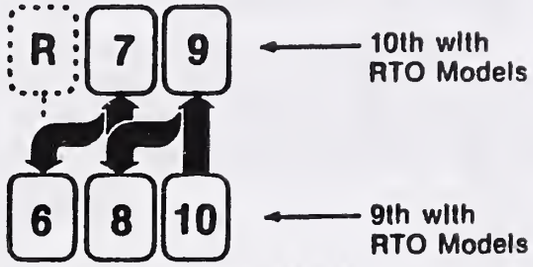


7. Continue upshifting, double-clutching, from 6th through 7th, 8th and 9th to 10th while in High Range.



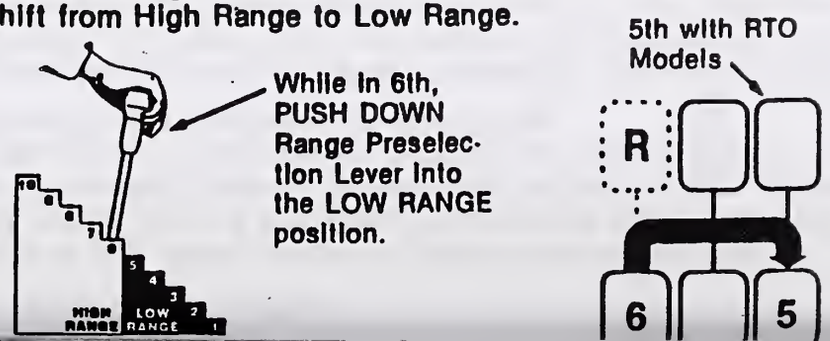
Downshifting

1. Move the gear shift lever, double-clutching, from 10th through 9th, 8th and 7th to 6th while in High Range.

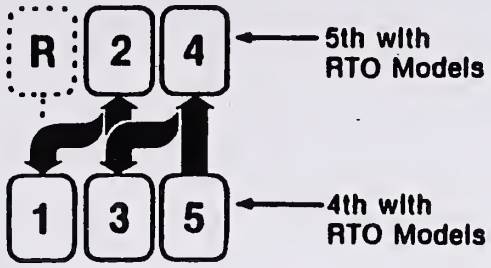


Range shift from High Range to Low Range . . .

2. While in 6th and ready for the next downshift, PUSH DOWN the Range Preselection Lever and move the shift lever, double-clutching, to the 5th speed gear position. As the shift lever passes through neutral, the transmission will automatically shift from High Range to Low Range.



3. Continue downshifting, double-clutching, from 5th through 4th, 3rd and 2nd to 1st while in Low Range.



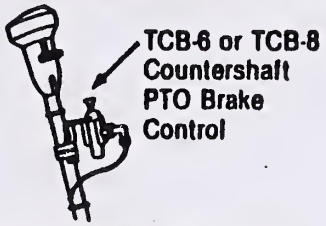
Skip-Shifting

After becoming proficient in shifting, you may want to skip some of the ratios. This may be done ONLY when operating conditions permit, depending on the load, terrain and road speed.

Optional Equipment — The Countershaft Brake and Clutch Brake

For an easier, faster shift, some Fuller transmissions may be equipped with either a Countershaft Brake or a Clutch Brake.

Countershaft Brake (Used with push-type clutches) — This brake is used ONLY for INITIAL gear engagement into 1st or reverse when vehicle is standing still.



The control button is mounted on the gear shift lever just below the Master Control Valve. To operate, disengage the clutch, press down control button and shift into 1st or reverse.

This is an air operated mechanical brake which slows down the transmission gearing by forcing a piston against the countershaft PTO gear.

Never use the Countershaft Brake when upshifting or downshifting. Use ONLY for initial gear engagement when vehicle is standing still.

The Clutch Brake (Used with pull-type clutches) — This brake provides fast, easy initial gear engagement with the vehicle standing still. It also can be used while upshifting to help complete the upshift under adverse conditions where vehicle road-speed rapidly slows down. For instance, when accelerating up a hill from a standing start.

The brake is applied by fully depressing the clutch pedal to the floor board. When applied the brake slows down the transmission gearing. It is a disc-type brake incorporated into the clutch and transmission drive gear assemblies.

Never use the Clutch Brake when downshifting, or as a brake to slow the vehicle.

Gear Ratios—Models with Conventional Gearing

Models	Low Range					High Range					Reverse
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Low/High
RT-610	9.00	7.02	5.48	4.26	3.43	2.62	2.05	1.60	1.24	1.00	9.50/2.77
RTO-610	7.25	5.66	4.42	3.43	2.76	2.11	1.65	1.29	1.00	.80	7.66/2.23
RT-910	8.14	6.38	5.05	4.00	3.24	2.51	1.97	1.56	1.24	1.00	8.83/2.73
RTO/RTX-910	6.59	5.16	4.08	3.24	2.62	2.04	1.59	1.26	1.00	. 81	7.15/2.21
RT-1110	9.71	7.49	5.83	4.50	3.55	2.74	2.11	1.65	1.27	1.00	9.71/2.74
RTO/RTX-1110	7.65	5.90	4.59	3.55	2.79	2.16	1.66	1.30	1.00	.79	7.65/2.16
RT-12510	9.71	7.49	5.83	4.50	3.55	2.74	2.11	1.65	1.27	1.00	9.71/2.74
RTO/RTX-12510	7.65	5.90	4.59	3.55	2.79	2.16	1.66	1.30	1.00	.79	7.65/2.16

Gear Ratios — New Generation Models

Models	Low Range					High Range					Reverse
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Low/High
RT-6610	8.94	7.00	5.46	4.26	3.42	2.61	2.05	1.60	1.25	1.00	9.50/2.78
RTO-6610	7.17	5.61	4.38	3.42	2.74	2.10	1.64	1.28	1.00	.80	7.61/2.23
RT-11610 RT-12610 RT-14610	9.96	7.63	5.90	4.54	3.57	2.79	2.14	1.65	1.27	1.00	9.84/2.76
RTO/RTX-11610 RTO/RTX-12610 RTO/RTX-14610	7.83	6.00	4.63	3.57	2.80	2.19	1.68	1.30	1.00	.78	7.73/2.16

Driving Tips

- For a smooth start, always select an initial starting gear that will provide sufficient reduction for the load and terrain.
- Always use normal double-clutching procedures when making lever shifts. (See back cover.)
- Never slam or jerk the shift lever to complete gear engagement.
- Never coast with the gear shift lever in the neutral position.
- Never move the Range Control Knob/Range Preselection Lever with the gear shift lever in the neutral position while the vehicle is moving.
- Never make a range shift while operating in reverse.
- Never downshift at too high of a road speed.
- When slowing down, the proficient vehicle operator can downshift through all the individual gear speeds to prolong the life of chassis and trailer brakes.
- In most cases, depending on the engine and axle ratios, you can save valuable fuel by operating the vehicle at less than governed RPM while cruising in 10th.

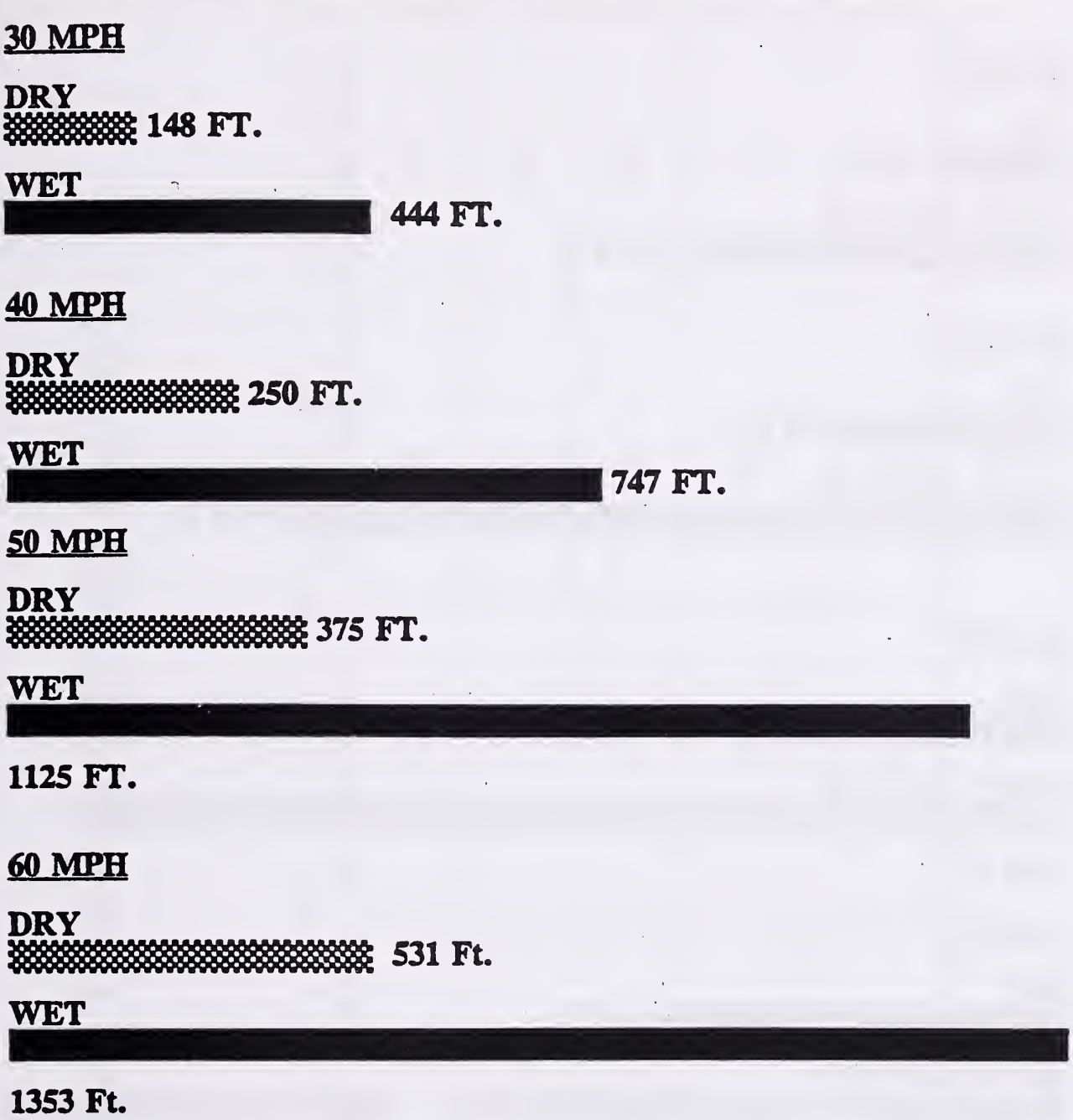
SERVICE LITERATURE:

Now you can order any available Fuller Transmission parts and service literature you need. Just fill out the order form on the next sheet, tear it out and send it to the address shown. Please print or type all information, and be sure to fill out the RECAP section on the second page. Allow up to 6 weeks for delivery.

6

BRAKING SYSTEMS

STOPPING DISTANCE-WET VS DRY PAVEMENT



On Wet Roads Cut Speed in Half to Stop in Same Number of Feet as on Dry Road.

Handout 3.7

STOPPING DISTANCE-SNOW AND ICE

30 MPH

DRY

148 FT.

SNOW AND ICE

533 FT.

40 MPH

DRY

250 FT.

SNOW AND ICE

896 FT.

50 MPH

DRY

375 FT.

SNOW AND ICE

1350 FT.

55 MPH

DRY

451 FT.

SNOW AND ICE

1624 FT.

Handout 3.8

RESPONSE TIME AND DISTANCE TRAVELED

Miles Per Hour	Feet Per Second	Response Distance	Braking Distance	Total Stop Distance
20	29	22	50	72
30	44	33	115	148
40	59	44	205	249
50	73	55	320	375
60	88	66	465	531

Handout 3.9

UPGRADE AND DOWNGRADE

Handling Upgrades

- Select proper gear.
- Watch temperature guage.
- Keep to the right, but not on the shoulder.
- Do not impede traffic.
- Watch tachometer.
- Downshift based on engine requirements.

Handling Downgrades

- Do brake check.
- Complete shift <u>before</u> starting down.
- Maintain proper brake pressure.
- Use engine exhaust break when possible.
- Watch air pressure

COMMUNICATION

MDT TWO-WAY RADIO SYSTEM

Highway System Frequencies and Tones

The highway radio system uses four different division frequencies and 8 different tones to give access to its various base and relay stations. These in addition to 3 other direct use channels give 35 possible combinations of radio frequencies to work with. This flexibility does generate some complexity, but in return give vastly extended range and the ability of a division to operate on a "clear" channel without having to share air time with an adjacent division.

Division Format

Division Format refers to the specific custom frequency/channel programming which is different in each division boundary. They do include adjacent division channels to communicate with adjoining divisions. Rather than a channel and tone being individually selected, a specific frequency and tone combination is tied to a specific channel selection to give easier operation by a busier operator. In other words the relay channels located in channel 6 and 7 would have the same frequency programmed but have different tones thus selecting two different relays by changing only the channel.

Radio Operation

1) Radio: Various models including Motorola and General Electric mobiles, King handhelds.

2) **Number of Channels:** 12 standard plus extra channels available on some models.

3) **Channel Assignments**

Channel	Use	Type of Operation
1	MDT Home Division Frequency	Direct
2	MDT Truck to Truck	Direct
3	Alternate frequency	Direct
4	Common Mutual Aid (MHP)	Direct
5	Local Division Relay	Relay
6	Local Division Relay	Relay
7	Local Division Relay	Relay

(Channels 5 and above are reserved for a specific relay frequency/tone combination for direct access. Higher frequencies also include direct and relay channels for adjoining divisions. Each division is customized. Channels 2, 3, and 4 are identical in all universal or local division radios no matter from what division they are.)

4) **Direct Channels**

Used for close range operation between mobiles and immediate area contact to direct base stations. Typical mobile to mobile range is 5-15 miles depending upon terrain. Mobile to base contact is dependent upon the location of the specific base station and will vary from 20-50 miles.

5) Relay Channels

Used for extended range mobile to mobile operation or distant contact to a headquarters base station. Mobile to mobile range may extend as far as 60 miles depending upon the specific location of the two mobiles and the associated relay station itself.

6) Examples of Operation-Mobile to Mobile

Close range-Use channel 2 whenever possible to keep unnecessary radio traffic off of the relays which rebroadcast on the division frequency for greater distances. The base stations do not monitor channel 2 making it the preferred close operation channel. Channel 3 may be utilized as an alternate second channel for close range mobile to mobile contact. Channel 3 is monitored by the main base stations.

Extended range via relays-Use the appropriate relay channel for your specific location and direction in which you wish to contact another unit. The normal relay channels in "local" radios are located in channels 5 and above. The proper relay should be selected from the Radio Directory call book or a local list of relay locations.

7) Example of Operation-Mobile to Base

Use Channel 1 if in the vicinity of the main base station. If not, use the appropriate relay station in you vicinity just as you would to contact another mobile.

8) Contact Procedures

Calling over a direct channel is similar to existing methods-"41-05 . . . . . 41-2 on 2". Always identify the channel or if using a relay, state the relay name "41-05 . . . . 41-2 on Jordon Relay." Once original contact is made, the channel or relay need not be mentioned again.

Remember that the division office console is not a truck radio and does not correspond to your channel numbers. The office will probably mark the corresponding numbers on their consoles for specific relays or direct channels, but can respond better for specific relays or direct channels when you inform them verbally in your initial contact which station you are calling through (such as "Direct" or "Jordon Relay".

Note: When contacting a unit which has a Universal style radio as opposed to a "local" radio, the "universal" radio channel assignments will not match you channel numbers. It is imperative to state the relay name in this case. This is also valid when contacting a unit in an adjoining division for which you may also have the frequencies channels 8 or above. The adjoining local units will have a different channel assignment set up for their own division system.

9) Rules of Operation

Whenever possible use channel 2 for direct communication between trucks in close vicinity. This relieves congestion on the division frequency which is the frequency the relays operate on. The relays should only be used when longer distance contacts must be made. Channel 2 is not monitored in the Division offices.

Alternate channels to communicate at close range are channel 1 and 3 and channels 5-

8 for universal format units which are assigned to specific division through-out the state.

Channel 4

Channel 4 is a direct channel reserved for communications with other agencies in emergencies or operations of mutual interest. It should never be used for communications between two highway units as a work frequency. The Highway Patrol and several other agencies both state and local monitor this frequency in their mobile units which allows it to be used as an emergency broadcast channel or inter-agency coordination channel in emergencies or disasters. Abuse of this channel by any other agencies or other highway units should be reported.

Relay Channel 5 and Up (Division)

Extended range through the relays is appropriate whenever contact is required over a distance too great to use a direct channel. The proper channel for the division operating in and the required tone for the specific relay in your vicinity must be selected.

Note: The frequencies assigned to the specific channels in local division truck radios is different and customized for each division to make select of relays simpler when operating equipment.

Using the System

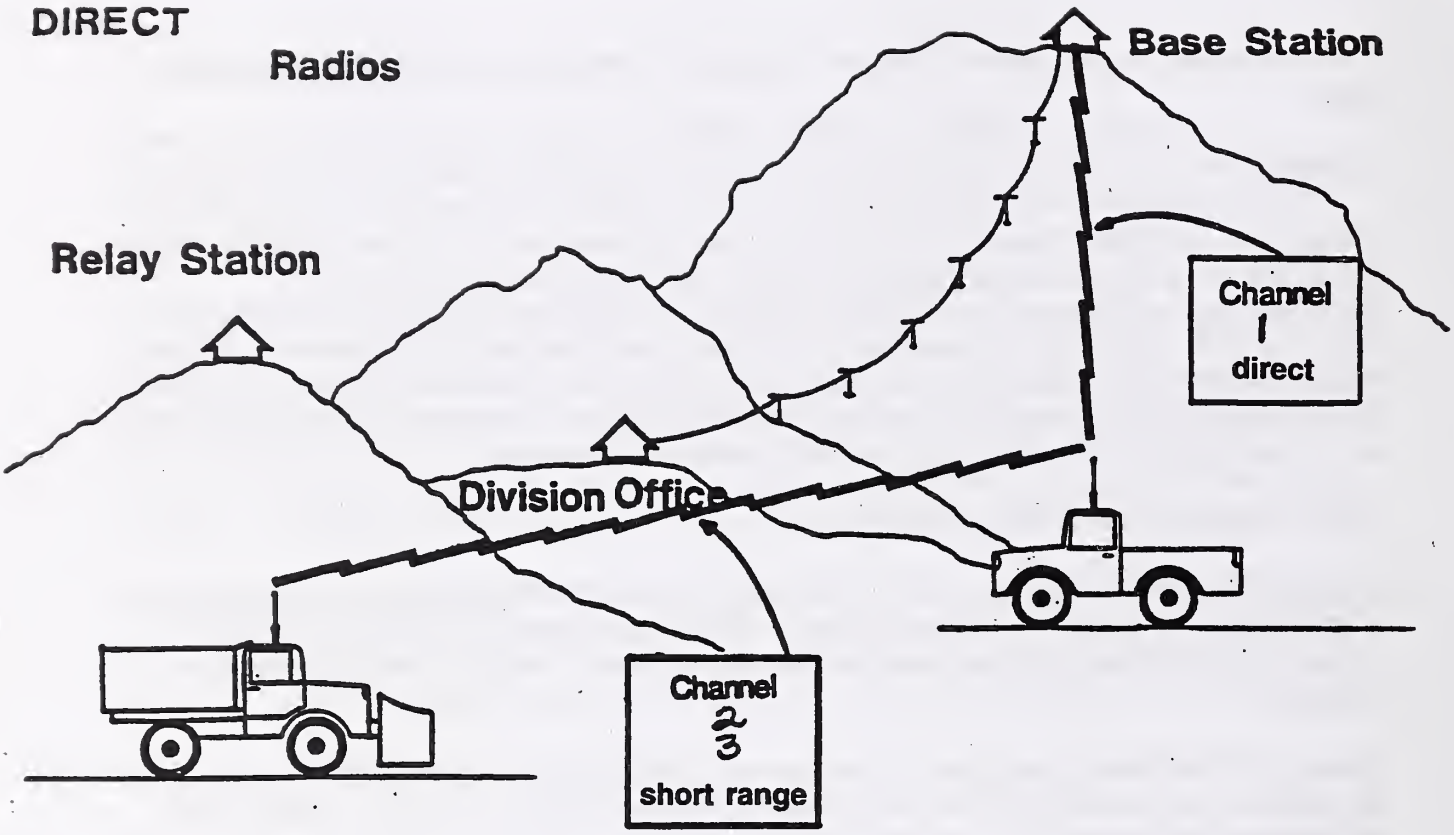
1) Keep conversations short.

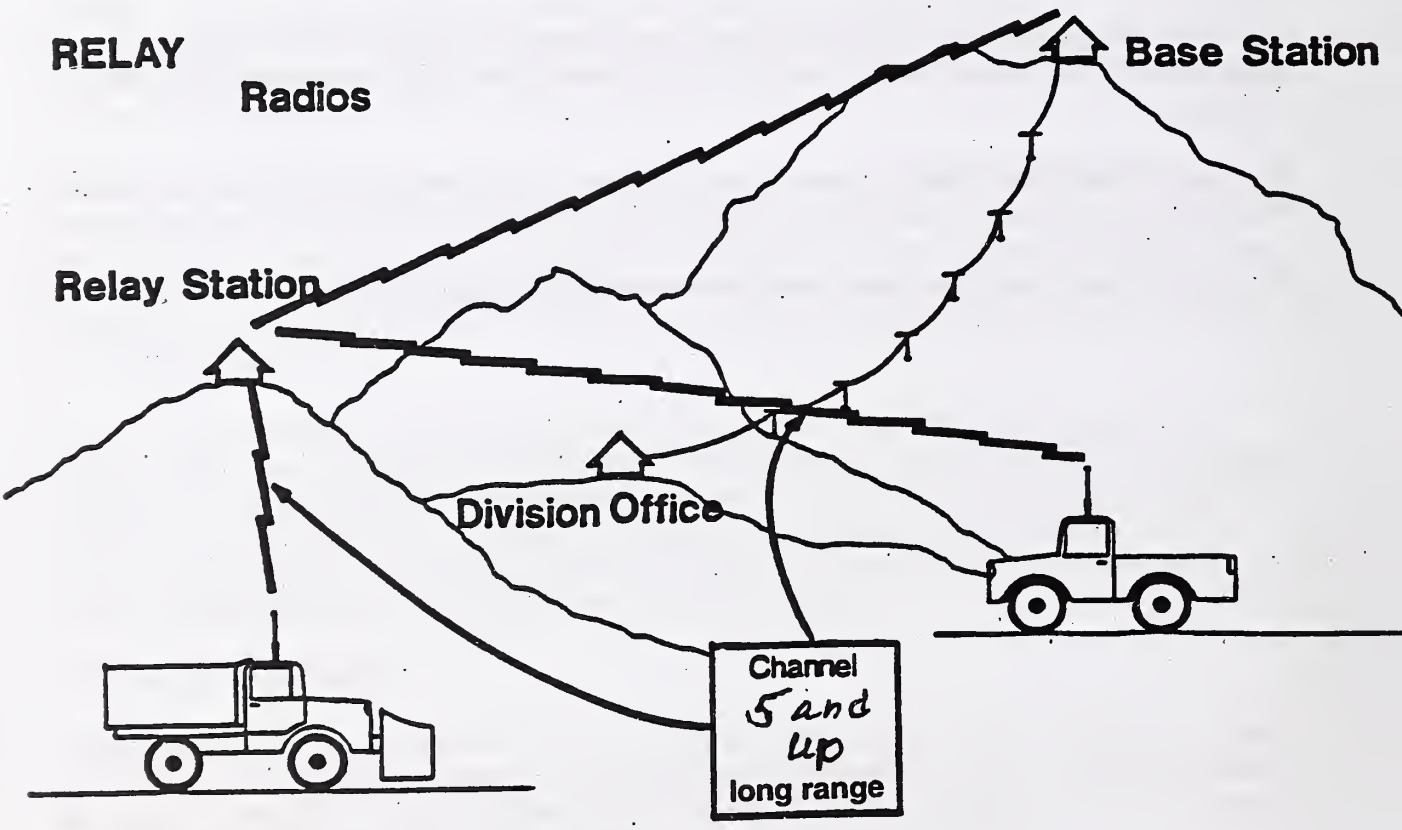
2) Don't use obscenities. This is against the Federal Communications Code. Violation of FCC could result in loss to the State of the right to operate the radio system.

3) Speak clearly and distinctly in a normal tone. Sometimes speaking slower helps the clarity.

4) Use the radio only for necessary communication related to work.

Handout 3.11


DIRECT
Radios
Base Station
Relay Station
Channel
1
direct
Division Office
Channel
2
3
short range


RELAY
Radios
Base Station
Relay Station
Division Office
Channel
5 and
up
long range

Quick Instructions (copy)

MONTANA DEPARTMENT OF TRANSPORTATION

short.ins

QUICK INSTRUCTIONS FOR OPERATING
"UNIVERSAL" FORMAT RADIOS

CLOSE RANGE COMMUNICATIONS: USE "D" (DIRECT) CHANNELS (CH 2-8) CHANNEL 2 PREFERRED OR DIVISION CHANNEL FROM LIST (CH 5-8)

LONG RANGE COMMUNICATIONS: USE "R" (RELAY) CHANNELS (9-12) ALONG WITH THE PROPER TONE FROM THE LIST. YOU CAN TALK WITH ANY OTHER UNIT WITH-IN RANGE OF THE SELECTED RELAY. WHEN YOU FIRST CALL, SAY WHICH RELAY YOU ARE TALKING THROUGH.

REFER TO RADIO SITE LIST TO SELECT THE RELAY SITE NEAREST YOUR LOCATION.

TONE SWITCH MAY BE THE "MODE" CONTROL OR A SEPARATE OUT-BOARD SWITCH DEVICE ATTACHED TO/OR NEAR THE CONTROL HEAD.

CHANNEL 4 IS THE EMERGENCY CHANNEL AND IS LOCATED IN ALL HIGHWAY PATROL VEHICLES AND MANY OTHER STATE AND LOCAL AGENCY VEHICLES.

EXAMPLES FOR USING RELAYS: CALL DIVI. HQ FROM EAST OF BILLINGS - FROM LIST SELECT CHANNEL 10, TONE 5. SAY "BILLINGS, A-54, ON HYSHAM RELAY".

CALL ANOTHER VEHICLE NEAR ROGERS PASS - FROM LIST SELECT CHANNEL 10, TONE 2. SAY "31-2, A-54, ON ROGERS PASS RELAY"

DEPARTMENT OF TRANSPORTATION
RADIO SITE LIST
UNIVERSAL AND LOCAL TRUCKS CHANNELS

08-04-92

AREA OF OPERATION	UNIVERSAL CHANNEL/ TONE	DIRECT RELAY	LOCAL TRUCKS CHANNEL
BILLINGS	6	D	1
RED LODGE	10-8	R	5
HYSHAM	10-5	R	6
LODGE GRASS	10-6	R	7
BIG TIMBER	10-4	R	9
BOZEMAN	5	D	1
BOZEMAN	9-2	R	5
BIG SKY	9-3	R	6
ENNIS	9-7	R	7
WEST YELLOWSTONE	9-2	R	5
BUTTE	8	D	1
BUTTE	12-1	R	5
TOWNSEND	12-6	R	6
DILLON	12-5	R	7
WISDOM	12-2	R	9
MCDONALD PASS	12-4	R	8
GLENDIVE	5	D	1
GLENDIVE	9-5	R	5
JORDAN	9-1	R	7
SIDNEY	9-4	R	6
LINDSEY	9-6	R	8
GREAT FALLS	6	D	1
HIGHWOOD	10-8	R	7
ROGERS PASS	10-2	R	6
NEIHART	10-7	R	7
HAVRE	5	D	1
ZORTMAN	9-5	R	5
BROWNING	9-3	R	6
CHESTER	9-4	R	7
HAVRE	9-6	R	8
HELENA	8	D	1
MCDONALD PASS	12-4	R	8
KALISPELL	7	D	1
KALISPELL	11-2	R	5
LIBBY	11-8	R	6
THOMPSON FALLS	11-6	R	7
GLACIER	11-1	R	8
LEWISTOWN	7	D	1
LEWISTOWN	11-7	R	7
ROUNDUP	11-2	R	5
HARLOWTON	11-3	R	6
MILES CITY	8	D	1
BAKER	12-7	R	5
BROADUS	12-2	R	6
MILES CITY	12-3	R	7
FORSYTH	12-1	R	12
MISSOULA	5	D	1
MISSOULA	9-3	R	5
ST.REGIS	9-8	R	9
DRUMMOND	9-9	R	7
LOST TRAIL	9-8	R	9
LOLO	9-5	R	8
PLAINS	9-7	R	6
WOLF POINT	6	D	1
PLENTYWOOD	10-8	R	8
SACO	10-8	R	8
GLASGOW	10-2	R	7
CULBERTSON	10-2	R	7
WOLF POINT	10-3	R	5
SCOBEY	10-7	R	6

Information Needed By Dispatch When Calling In Following Situations

Accident Information Request

1. Milepost, Highway, Lane of Travel
2. Injuries? If so, how many?
3. Road blockage? If so, driving or passing lane?
4. Number of vehicles involved
5. Vehicle(s) description, license # and state
6. Report any damage to state property

Motorist Assist or Wrecker Request

1. Milepost, Highway, Lane of Travel
2. Description of vehicle: color, make and model
3. Vehicle License number and state
4. Vehicle Problem (If Known)
5. Wrecker Preference? (If AAA is requested, Give AAA number, name, and expiration date.)

Brand Inspector Request

1. Milepost, Highway, Which Side of the Road
2. Number and Type of Animal(s)
3. Description of Animal(s) (Color etc..)

Phonetic Alphabet

A-Adam	J-John	S-Sam
B-Boy	K-King	T-Tom
C-Charles	L-Lincoln	U-Union
D-David	M-Mary	V-Victor
E-Edward	N-Nora	W-William
F-Frank	O-Ocean	X-X-ray
G-George	P-Paul	Y-Young
H-Henry	Q-Queen	Z-Zebra
I-Ida	R-Robert	

Condition Numbers and Descriptions

Priority Conditions:

Emergency Travel Only
Chains Required on Towing Units
Chains Required on Towing Units - Northbound
Chains Required on Towing Units - Southbound
Chains Required on Towing Units - Westbound
Chains Required on Towing Units - Eastbound
Road Closed
Road Closed - Northbound
Road Closed - Southbound
Road Closed - Westbound
Road Closed - Eastbound
Road Re-open

Icon Conditions:

08	Fog	15	High Wind Warning
09	Heavy Fog	16	Blowing and Drifting
11	Black Ice	17	Poor Visibility
12	Frost on Bridges	19	Fallen Rock
14	High Winds		

Conditions:

Rain
Freezing Rain
Snowing
Light Snow
Inches of New Snow
Heavy Snow
Mostly dry with scattered snowpack and ice
Dry
Wet
Slushy
Intermittently Snowpacked

25	Snowpacked
26	Intermittent Ice
27	Icy
28	Intermittently Snowpacked and Icy
29	Snowpacked and Icy
30	Frost on road
31	Snowcovered
32	Snowcovered with Ice
44	Closed for the winter
45	Closed due to avalanche

Module 6: Snow Plow Operation

Ten Commandments for Snow Plow Operators
Snow Plow Operation Checklist
Levels of Service
Know Your Snow Plow Route
Assignment Sheet: Constructing A Snow Removal Plan
Cutting Edges
Group Activity: Emergency Scenario Situations

Purpose:

To learn to properly and safely mount snow plows and sanders, and safely operate them in diverse conditions.

Objectives:

- ✓ **Learn to safely mount and remove a snowplow.**
- ✓ **Learn to mount, calibrate, and remove a sander.**
- ✓ **Learn to safely operate and control a snow plow.**
- ✓ **Identify safety precautions in diverse plowing conditions.**
- ✓ **Analyze and effectively manage hazards on a snow plow route.**

Commandments for Snow Plow Drivers

1. Thou shalt present thyself to thy job physically and mentally fit and properly clothed for any emergency in order to withstand the rigors of thy task.
2. Thou shalt never enter thy cab without inspecting thy truck and equipment.
3. Thou shalt know thy spreading and plowing routes, as well as the performance of thy spinner, and the life of thy cutting edges.
4. Thou shalt faithfully remain alert in order to avoid guardrails, headers, stalled cars, manhole covers, railroad tracks and mailboxes,or thou might smite thy windshield with thy head.
5. Thou shalt contain thy temper even though cars and trucks pass thee on both sides and tailgate thee too close for comfort. Anger only multiplies thy prospects of coming to grief by accident.
6. Thou shalt use thy radio as briefly as possible. Fellow brothers may need to communicate in an emergency situation.
7. Thou shalt render thy truck and spreader out of gear and stoutly set thy brakes before dismounting from thy cab.
8. Thou shalt interrupt the flow of power to thy spreader before attempting to free foreign objects or blockages, for thou treasures thy fingers.
9. Thou shalt govern thy speed according to conditions; else thou might wind up with thy truck upside down.
10. Thou shalt mind thy manners on the roadway; clearly signal thy intentions; render assistance to stranded motorists; and remember it is better to give rather than to receive.

(Excerpted with minor changes from Rural and Urban Roads, June 1980)

Snow Plow Operation Checklist

Name_____ Social Security Number_____

Date_____ District_____ Section _____

Vehicle_____

Check for acceptable performance. NA if not applicable.

Mounts//Removes a Snowplow Alone
_____ Aligns truck correctly
_____ Attaches hydraulic line
_____ Inspects cutting edge/checks for cracked blade
_____ Replaces worn blades
_____ Keeps plow chain (on one-way plows) adjusted
_____ Puts on and remove chains

Mounts/Calibrates/Removes a Sander Alone
_____ Installs warning/flashing lights when needed
_____ Analyzes snowplow route for hazards
Bridges and bridge ends
Cattle guards
Railroad tracks
Guardrail
Traffic control

Controls the Snowplow Correctly/Safely
_____ One-way plows
_____ Two-way plows
_____ Wings
_____ Maintains correct speed for road conditions
_____ Operates hydraulic controls
_____ Uses correct technique for lowering plow blade
_____ Uses lights and signals appropriately
_____ Keeps snow discharge on edge of the bridge
_____ Turns properly
_____ Brakes properly
_____ Is aware of visibility problems

Controls the Sander Correctly and Safely
_____ Loads sand safely
_____ Pre-checks sander
_____ Spreads sand safely
_____ Turns off sander when meeting traffic on two lanes or when traffic is following to close

Comments:

Levels of Service

Classification	Type Roadway	Typical Storm Daily Coverage Times	Recommended Levels
Level I	Urban (3-mile radius) Greater than 5000 ADT	24 hours or until intermittent bare pavement is achieved in the primary driving lane(s)	All lanes should have substantially bare pavement before coverage time is reduced. This should be accomplished using an anti-icing program.
Level 1-A	Interstates or Roadways >3000 ADT/day	19 hours -5:00 A.M. till 12:00 A.M. or until intermittently bare pavement exists in the primary driving lane(s)	The right lane on divided roadways and both lanes on two-lane roads should have bare wheel paths with an intermittent bare pavement before coverage time is reduced.
Level II	High Volume Roadways (>1000 but <3000) ADT/day	17 hours - 5 A. M. till 10:00 P.M. or until snow packed and/or icy surfaces have been treated with abrasive, abrasive/chemical combinations	Both lanes should have reasonable pavement surface with sanded hills, bridges, intersections and curves before coverage time is reduced.
Level III	Low Volume Roadways (<1000, but >200) ADT/day	15 hours - 5:00 A.M. till 8:00 P.M. or as available personnel and equipment permit and until hills, curves, bridges and inter-sections have been deiced or sanded	A reasonable pavement surface each with intermittent sanded areas (hills, bridges, intersections and curves) should be attained before coverage time is reduced.
Level IV	Roadway <200 ADT/day	8 hours or during regularly scheduled work hours and only as personnel and equipment permit	Should provide a plowed roadway surface during regular scheduled work hours. Abrasives may be used on hills, bridges, curves and intersections.

Level V	Seasonal Roadways	N/A	Those roadways that receive no scheduled winter maintenance.

All P.M. 10 non-attainment will receive the level of service based on the individual non-attainment area's requirements.

The Department's snow and ice control operations are limited by resources (budget limitations on personnel, equipment and materials) available for winter maintenance operations. Due to these limited resources, six levels of service have been established. Factors which should be considered when establishing the level of service for a specific route is as follows.

- Safety
- Average daily traffic (ADT)
- Commuter routes
- Availability of alternate routes
- Public interest and concern
- Potential economic impact
- Consequence of not providing a higher level of service
- Available resources

NOTE: If the Area Maintenance Chief and/or District Administrator has justification why a roadway should receive a different level than the guidelines indicate, a letter of justification will be sent to the Maintenance Division Administrator if the change could result in a budget overrun. An example would be a high-volume X route or frontage road like in the Billings or Missoula areas. For the purpose of the guidelines, all roadways are considered to be school bus routes.

TYPICAL WINTER STORM MAINTENANCE STANDARDS (LEVELS) DEFINITIONS

OBJECTIVE:

The objective of these Winter Maintenance Standards (levels) is to provide the maintenance areas with guidelines that will provide fairly uniform service and information to the public throughout the state during a typical normal winter storm. During the unusual or extreme winter conditions, Maintenance will provide normal services as soon as available resource permits.

The Area Maintenance Chiefs will determine the actual roadway (route) priorities using the following guidelines to establish the most efficient use of equipment, manpower and materials.

Plowing, sanding and chemical anti-icing and deicing will be accomplished as follows:

LEVEL I (Urban)

- **All MDT-maintained roadways generally within or adjacent a 3-mile radius to towns or cities with an average daily traffic (ADT) greater than 5000 per day.**

Snow plowing and anti/deicing operations may be continuous throughout the storm. These routes are eligible to receive up to 24 hours per day coverage during a winter storm event.

The primary objective will be to keep at least one travel lane in each direction open to traffic and to provide intermittently a bare pavement as soon as possible. Snow plowing, anti-icing, and/or deicing operations may be continued after the storm to achieve an intermittent bare pavement in the primary travel lane. Remaining travel lanes and shoulders should be cleared as quickly as available manpower and equipment permit. In order to ensure the most efficient and effective utilization of available staffing and equipment, implementation of coverage time frames will be at the discretion of the Area Maintenance Chief.

Level I roadways are eligible for the development and implemention of anti-icing strategies. Using available remote weather informational system (RWIS) information and weather forecasts in combination with accepted/efficient anti-

icing techniques. When deemed appropriate, the application of anti-icing chemicals will normally commence prior to the storm with uniform and controlled predetermined coverage.

Application of abrasives or chemicals in combination and/or straight for deicing purposes is acceptable. Straight applications of liquid chemicals (deicing) is acceptable to thin accumulations of snow/ice pack when acceptable weather conditions and effective application methods are employed.

LEVEL 1-A

- **All Interstate and other MDT-maintained roadways with an ADT of greater than 3000 vehicles per day.**

Snow plowing and sanding/deicing operations may be continuous throughout the storm. These routes are eligible to receive up to 19 hours per day coverage, typically between the hours 5:00 A. M. and 12:00 A.M., during a winter storm event. In order to ensure the most efficient and effective utilization of available staffing and equipment, implementation of coverage will be at the discretion of the Area Maintenance Chief.

The primary objective will be to keep the roadway open to traffic and provide an intermittent bare pavement surface in the main driving lane as soon as possible. The remaining lanes and shoulders should be cleared as soon as conditions and available manpower and equipment allows

The exception would be when blizzard and/or other severe forms of weather make conditions such that maintenance and motor vehicles cannot safely negotiate the traveled way.

Anti-icing and sanding/deicing operations will typically be conducted during the storm. De-icing operations will normally consist of applying a predetermined quantity of a salt/sand mixture, liquid deicer/sand mixture or a straight application of deicing chemicals. The application of straight chemicals to snowpacked or icy surfaces will not be a standard practice. The exception being where unique or extraordinary circumstances exist, and then only when acceptable weather conditions and effective application methods are employed.

LEVEL II

- **All MDT-maintained roadways with an 1000-3000 vehicles per day.**

Snow plowing and sanding/deicing operations should be conducted during the storm event. These routes are eligible to receive up 17 hours per day coverage, typically between 5:00 A.M. and 10:00 P.M. during a winter storm event. In order to ensure the most efficient and effective utilization of available staffing and equipment, implementation of coverage will be at the discretion of the Area Maintenance Chief.

The primary objective will be to keep one lane in each direction open to traffic. Snowpacked and/or icy surfaces are acceptable but they may be treated abrasives or abrasives/chemical combination.

The exception would be when blizzard or other severe forms of weather make conditions such that maintenance and motor vehicle operators cannot safely negotiate the traveled way.

Plowing/removal of any snowpack or icy surfaces, widening of the traveled way and clearing of shoulders should be accomplished only during regularly scheduled work hours. The Area Maintenance Chief may authorize overtime for additional work of this where unique or extraordinary conditions exist.

Anti-icing strategies and techniques will not be implemented on Level II routes unless it can be documented to be cost effective to do so.

LEVEL III

- **All MDT-maintained roadways with an ADT of 200-1000 vehicles per day.**

When staffing and equipment is available, snow plowing and sanding operations will typically be conducted during the storm to keep the driving lanes passable. These routes are eligible to receive up to 15 hours per day coverage typically between the hours of 5:00 A.M. and 8:00 P.M., during a winter storm event. In order to ensure the most efficient and effective utilization of available staffing and

equipment, implementation of coverage will be at the discretion of the Area Maintenance Chief.

Hills, curves, bridges and intersections should be treated with abrasives or abrasive/chemical combinations prior to ceasing operations. The exception would be when blizzard or other severe forms of weather make conditions such that maintenance and motor vehicle operators cannot reasonably negotiate the travelway.

Snow packed and/or icy surfaces are acceptable for Level III roadways. Generally straight sections of roadway will not be sanded unless extraordinary circumstances exist. Additional snow removal will be accomplished during regular scheduled working hours. Generally, straight chemicals will not be used but should be applied in combination with abrasives.

LEVEL IV

- **All MDT-maintained roadways with an ADT of less than 200 vehicles per day.**

When staffing and equipment is not being utilized to clear other roadways, snow removal operations may be conducted. Winter maintenance activities will be accomplished during regularly scheduled working hours.

These roadways may be closed for an extended period of time until resources are available to plow the travelway. Abrasives may be used on hills, curves, bridges and intersections. If surface conditions become too hazardous for traffic to safely negotiate, the section should be closed. When temporary closures are required, signing, notification of authorities, etc., are accomplished in accordance with the Maintenance Manual. These routes should be posted to indicate limited maintenance.

LEVEL V

- **Seasonal Roadways**

These roadways will receive no scheduled winter maintenance activities. These will generally be roadways that are of a seasonal nature or designated a non-maintained route. These routes should be posted to indicate no winter maintenance.

Drive Snow Route Before Winter Season

Drive Route With Supervisor making note of the following:

- ✓ **Spots where ice will be a problem:**
  - **Hills**
  - **Curves**
  - **Intersections**
  - **Super Elevation**
- ✓ **Ditches & Drainage Systems = Clean**
- ✓ **Shoulders = Smooth and Flush, Areas with Room to Store Snow, Narrow Shoulders with Little Operating Room**
- ✓ **Vegetation that would cause drifting = Cut or removed**
- ✓ **Right of Way Fences = Clean and Unclogged**
- ✓ **Dangerous Trees = Removed**
- ✓ **Manholes and Bridge Ends = Patched**
- ✓ **Snow Fences = Good Condition and Located Where Needed**
- ✓ **Review route after first snowstorm to check to see if any hazards were missed.**

Cutting Edges

Not paying attention to the condition of your cutting edges can mean time off **without pay** if you do damage to the plow itself. The following tips can keep you rolling along.

- **Always Check Your Cutting Edges Before, During, and After You Operate Your Plow.**
- **Remember That Chip Seal Is Hard On Cutting Edges, And Edges Should Be Checked More Often.**
- **Wear Gloves When Changing Cutting Edges As The Carbide Becomes Very Sharp.**
- **If Someone Is Around Ask For Help Changing Your Edges.**
- **Remember Cutting Edges Can Wear Unevenly. Check All Sections Of The Edges.**
- **Check For Loose Bolts And Cracks In Cutting Edges.**
- **Remember: Cutting Edges Ride Directly On Road Surfaces. Take Caution Of What You Plow Over...Manholes, Bridge Ends, Cattle Guards, Frozen Debris, Animal Carcasses, Curbs, Frost Heaves.**

Emergency Scenario Activity

Directions: Divide into groups of 4 or 5. Each member of the group is assigned a role: note taker, information seeker, speaker, devil's advocate, or facilitator. Each group will assess a given scenario and provide a plan of action to be taken. List radio channels used, people contacted, resources used, and priority of steps taken. There is no "one" correct way to react to the scenarios and no "one" way to present your plan of action. You have fifteen minutes to devise a plan. Your speaker will present your plan to the class for discussion.

Scenario I
Time: 12:30 a.m.
Road: Interstate
Road Conditions: Intermittently icy due to a warm day, and thawing snow turning to ice.
Accident: First to arrive. Rollover accident. One vehicle. Vehicle blocking passing lane. Two passengers. One thrown from the vehicle lying on the shoulder of the road. Second passenger unconscious and trapped in overturned car.

Scenario II
Time: 3:30 p.m.
Road: Rural Two Way
Road Conditions: Light snow. Half an inch accumulated wet snow.
Road Obstruction: Large, deceased local farmer's cow in the middle of the road.

Scenario III
Time: 3:00 a.m.
Road: Interstate
Road Conditions: Intermittent black ice
Hazardous Materials Spill: Diesel Fuel tanker has turned over on the shoulder of the passing lane. Looks as though ½ the Diesel Fuel has spilled onto the roadway and into median.

Scenario IV
Time: 2:00 p.m.
Road: Rural two way
Road Conditions: Snow packed and icy
Accident: Head on collision. Rural two way. One casualty. Three additional motorists with serious injuries.

Scenario V
Time: 4:30 p.m.
Road: Interstate
Road Conditions: Routine sanding
Road Obstruction: Rockslide. No accidents. Several large boulders in right lane.

Module 7: Truck and Trailer Usage

Truck and Trailer Operation Checklist

Purpose:

To learn safe operation for truck with trailer usage.

Objectives:

- ✓ **Learn to couple a trailer.**
- ✓ **To secure a load.**
- ✓ **To demonstrate a pre-operational check.**
- ✓ **To safely drive a truck/trailer around corners.**
- ✓ **To safely uncouple and secure a trailer.**

Truck and Trailer Operation Checklist

Name_____ Social Security Number_____

Date_____ District_____ Section _____

Vehicle_____

Check for acceptable performance. NA if not applicable.

Hooking Up the Trailer

_____ Backs up lining the truck up to trailer
_____ Secures truck for hook-up
_____ Secures the truck for coupling
_____ Couples the trailer correctly
_____ Checks trailer's tires, lights, and brakes
_____ Uses the safety chains correctly
_____ Properly secures load on trailer (with cross chaining)
_____ Does walk-around to check trailer and truck
Comments:

Pulling the Trailer

_____ Pulls the trailer correctly
_____ Drives correctly on highway
_____ Drives correctly for serpentine driving
_____ Turns corners correctly with the trailer- left & right
Comments:

Backing the Trailer

_____ Backs the trailer correctly to the left and right
_____ Positions trailer properly at dock
_____ Recognizes helper's hand signals
_____ Uncouples the trailer properly
_____ Secures the trailer properly
Comments:

Trainer_____

Employee_____

Module 8: Loader Usage

Classroom setting:

Provides overview of proper loader use, including walk-around, start-up and shut down procedures. Provides understanding of loading cycles, stockpile maintenance, and truck loading.

Hands on setting:

Instructors will demonstrate walk-around, start-up and shut down procedures. Instructors will demonstrate loading cycles, stockpile maintenance, and truck loading. Individual trainees will participate in listed activities under guidance of instructors.

Module 9: Traffic Control

Classroom setting:

Provides overview of proper use of signs, cones and flaggers within a properly designed work zone. Provides working skills in setting up a short-term work zone and skills necessary to function as a flagger.

Module 10: Review

Group Activity/Manual Review

Purpose:

To review information provided in training.

Objectives:

- ✓ **Ability to answer questions from memory**
- ✓ **Ability to reference manuals and handbooks to answer questions one might encounter on the job.**
- ✓ **Provide a thorough review period to reinforce information received at training.**

Group Activity / Manual Review

The purpose of this exercise is to familiarize you with the various manuals you will encounter in your work area. These manuals are useful resources and much of the information has been covered in this class. Work together, in groups of 4 or 5, to locate the information below. <u>Be sure to include the name of the manual and the page number in your answer.</u>

1. How often should an 09 and above series truck be serviced?

2. A headlight is out on the truck. What steps are involved in replacing it?

3. What protective equipment should a flagger wear?

4. Why shouldn't snow be allowed to accumulate on the high side of a curve?

5. For best fuel economy, what gear should a driver operate in?

6. What do these symbols mean?

7. What steps does a driver need to follow when parking a truck?

8. What should a driver do when he/she has wet brakes?

9. When should an accident report be filled out?

10. What is the double-clutching procedure for a Roadranger transmission?

11. What is a Service Level 1 Road, and what priority does it have?

12. Name three important things to remember about cutting edges.

13. What safety precautions should be followed when fueling a truck?

14. What protective equipment should a front end loader operator wear?

15. What are the call in condition numbers for frost on bridges, and poor visibility?

16. What safety measures should be taken when removing a dead animal from the road?

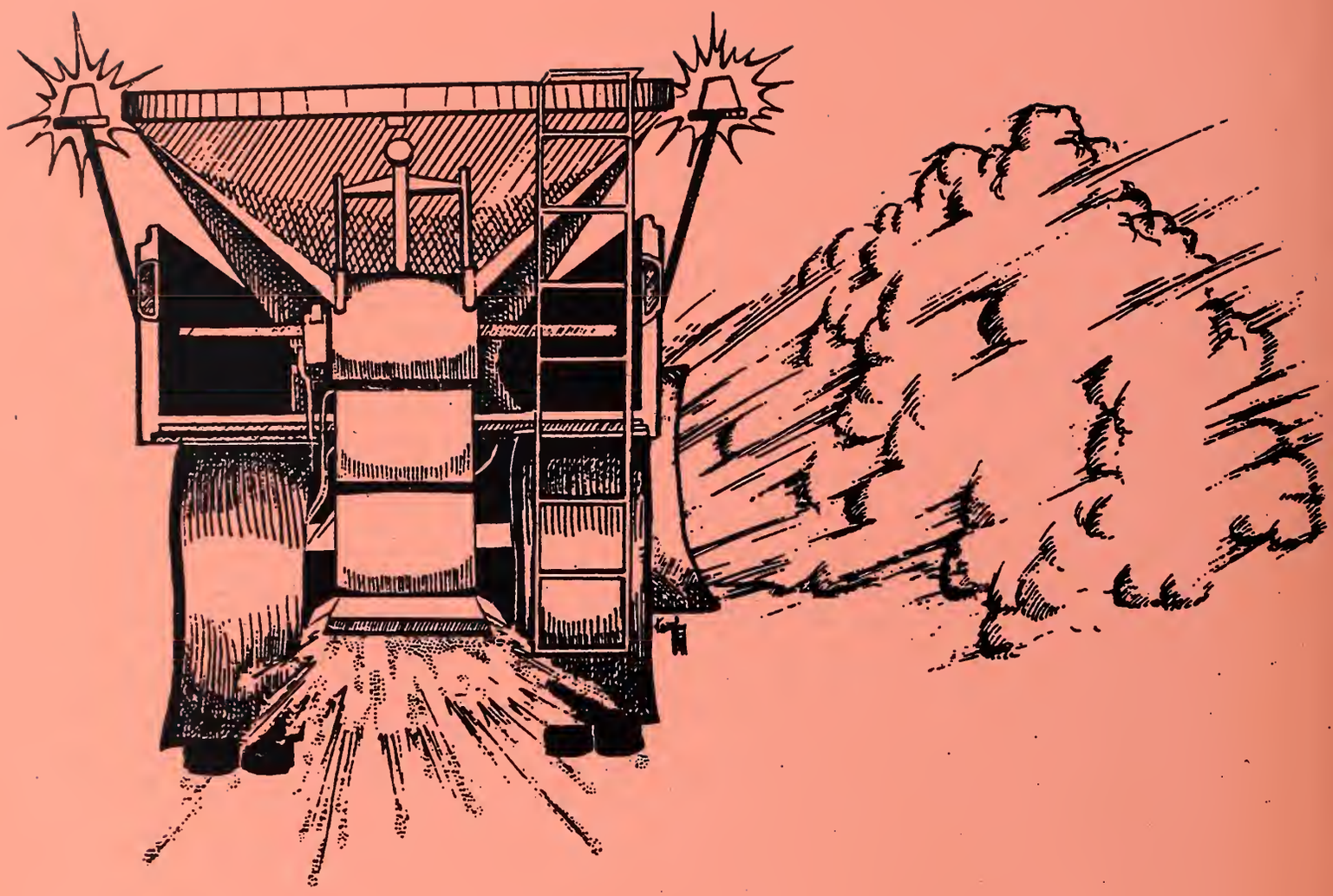
17. What steps should be taken if a hazardous waste spill is encountered on the job?

Module 11: Section Location

NOTE: Section supervisor or designated section employee at the location where the employee will be assigned provides orientation

Section Setting:

Provides new employee an overview of job functions at the specific work site. Specific items will include building maintenance, yard maintenance, material location, small equipment and tool use and general work procedures.

Hands on Setting:

Section supervisor or designated section employee will inform new employee of start-up and shut down procedures for section specific equipment. Site specific and snowplow route hazards will be identified for the new employee.